This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

BOSTON
MEDICAL LIBRARY

FOUNDED A.D. 1875
INCORPORATED 1877

IN THE
Francis A. Countway
Library of Medicine
BOSTON

LI

EDINBURGH

EDICAL JOURNAL,

COMBINING

THE MONTHLY JOURNAL OF MEDICINE

AND

THE EDINBURGH MEDICAL AND SURGICAL JOURNAL.

VOL. XXI.—PART I.

JULY TO DECEMBER 1875.

EDINBURGH:
OLIVER AND BOYD, TWEEDDALE COURT.
LONDON: SIMPKIN, MARSHALL, AND CO.

MDCCCLXXVI.

EDINBURGH: PRINTED BY OLIVER AND BOYD, TWEEDDALE COURT.

ALPHABETICAL LIST
OF THE
CONTRIBUTORS OF ORIGINAL ARTICLES.

NNANDALE, THOMAS, F.R.S. Ed., F.R.C.S. Ed., Surgeon to the Royal Infirmary, Edinburgh, and Lecturer on Clinical Surgery there.

ALFOUR, GEORGE W., M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, etc., Edinburgh.

ELL, JOSEPH, F.R.S. Ed., F.R.C.S. Ed., Surgeon to the Royal Infirmary and Lecturer on Surgery, Edinburgh.

RAMWELL, BYROM, M.B., Physician and Pathologist to the Newcastle-on-Tyne Infirmary.

RAMWELL, JAMES P., M.D., one of the Visiting Surgeons to the Perth Infirmary.

UCHANAN, GEORGE, M.A., M.D., Professor of Clinical Surgery in Glasgow University.

ADELL, FRANCIS, M.B.

SSELLS, JAMES PATTERSON, M.D., M.R.C.S. Lond. etc., Surgeon to, and Lecturer on Aural Surgery at, the Glasgow Dispensary for the Diseases of the Ear.

ARCOT, Professor, La Salpêtrière, Paris.

IENE, JOHN, F.R.C.S. Ed., Assistant-Surgeon, Royal Infirmary, Edinburgh.

URCH, HENRY M., M.D., B.Sc.

OUSTON, T. S., M.D., F.R.C.P. Ed., Physician-Superintendent, Royal Edinburgh Asylum.

LDSTREAM, ALEXANDER R., M.B., C.M., L.R.C.S. Ed.

RMACK, Sir JOHN ROSE, M.D., F.R.S. Ed., F.R.C.P. Lond., Chevalier of the Legion of Honour, Physician to the Hertford British Hospital, Paris.

TTON, HOLLAND J., M.B., etc., House Physician to the Royal Infirmary, Edinburgh.

AIG, WILLIAM, M.D., C.M., F.R.S. Ed., F.R.C.S. Ed., Lecturer on Materia Medica, etc., Edinburgh School of Medicine.

CUMMING, JAMES, M.D., F.R.C.P. Ed., Extra Physician to the Royal Hospital for Sick Children, Edinburgh.

CURRAN, WILLIAM, M.D., Surgeon-Major, Army Medical Department, India.

CUTHBERT, CLARKSON, M.D., F.R.C.S. Ed.

DUNCAN, J. MATTHEWS, M.D., F.R.S. Ed., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh; Lecturer on Midwifery, and Clinical Lecturer on the Diseases of Women and Children.

DUNCAN, JOHN, M.A., M.D., F.R.C.S. Ed., Assistant-Surgeon to the Royal Infirmary, Edinburgh.

FARQUHARSON, ROBERT, M.D., Lecturer on Materia Medica at St Mary's Hospital Medical School, and Physician to the Belgrave Hospital for Children, London.

FINLAY, W. A., M.D., M.R.C.P. Ed., Trinity.

FLEMING, GEORGE, M.R.C.V.S., F.R.G.S., Royal Engineers.

IRELAND, W. W., M.D., Medical Superintendent of the Larbert Institution.

KEITH, THOMAS, M.D., F.R.C.S. Ed.

LABONTÉ, Dr, Mauritius.

LAYCOCK, T., M.D., Physician in Ordinary to the Queen for Scotland, and Professor of the Practice of Physic and of Clinical Medicine, Edinburgh University.

LINDSAY, W. LAUDER, M.D., F.R.S. Ed., Physician to the Murray Royal Institution for the Insane, Perth.

LISTER, JOSEPH, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.

LITTLEJOHN, HENRY D., M.D., F.R.C.S. Ed., Medical Officer of Health, and Lecturer on Medical Jurisprudence and Public Health.

MACEWEN, WILLIAM, M.D., etc., Glasgow.

MACLAGAN, R. CRAIG, M.D.

MACPHERSON, JOHN, M.D., Inspector-General of Hospitals.

MARSHALL, ANDREW, M.D., Hon. Med. Officer to the Preston and County of Lancaster Royal Infirmary.

MILLER, A. G., M.D.

MOINET, FRANCIS W., M.D., F.R.C.P. Ed., Lecturer on Materia Medica, Edinburgh School of Medicine.

NAYLOR, CHARLES G. R.

RENTON, J. CRAWFORD, M.B., etc., Glasgow.

SAUNDBY, ROBERT, M.B., Resident Physician, Saughton Hall Asylum.

SHEARER, GEORGE, M.D., Liverpool.

SIMPSON, ALEXANDER RUSSELL, M.D., Professor of Medicine and Midwifery and the Diseases of Women and Children in the University of Edinburgh.

SINCLAIR, ALEXANDER J., M.D., F.R.C.P. Ed., Physician to the Royal Dispensary, Edinburgh.

SOMERVILLE, ROBERT, M.D., Galashiels.

SPENCE, JAMES, Professor of Surgery in the University of Edinburgh.

STEVENSON, JOHN, M.B., Forfar.

STIRLING, WILLIAM, D.Sc., M.D., Demonstrator of Practical Physiology in the University of Edinburgh.

THIN, GEORGE, M.D., London.

UNDERHILL, CHARLES E., M.B., F.R.C.S.Ed.

YEATS, WILLIAM, M.D., etc., Bankfoot, Perth.

YOUNG, JAMES, M.D., Vice-President of the Obstetrical Society of Edinburgh.

THE

EDINBURGH

MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Lecture on Malposition of the Aorta, due to Rickets, simulating Aneurism.* By GEORGE W. BALFOUR, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh.

GENTLEMEN,—Some few years ago, a young man presented himself to me, stating that he had been about six months under treatment for supposed aneurism of the aorta, and that he was desirous of obtaining my opinion as to his present state and future prospects. Upon stripping this patient, inspection at once revealed that he had a distinctly abnormal pulsation between the second and third ribs on the right side, extending for about three-quarters of an inch to the right of the sternum; also that he had a slight scoliosis (lateral curvature) of the spinal column. Upon palpation, the chest was felt to expand slightly more freely on the right than on the left side; the abnormal pulsation was felt to be distinctly fluid in character, synchronous with the apex beat, and certainly not more forcible than it. Upon mensuration, the right side of the chest, at the level of the fourth rib, was found to measure a full inch in circumference more than the left; the right side measuring fourteen inches and a half, the left one thirteen inches and a half. Percussion revealed nothing abnormal, except a trifling dulness to the right of the sternum just over the abnormal pulsation, and closely restricted to it. Auscultation likewise revealed nothing abnormal; the respiratory murmurs and cardiac sounds were all normal; while over the abnormal pulsation referred to nothing more was audible than the sounds of the heart as they are normally heard at its base—left base, I was about to say—and, of course, I mean the base of the left heart; but, as you are well aware, we auscultate the aorta at the right edge of the sternum. Moreover, there was an entire absence, not only of any signs of abnormal pressure, but even of any symptoms of such a thing. The young man was otherwise in perfect health, of very fair physical development, and quite capable of average exertion up to the time when he had been put under treatment. From a due consideration of all the facts elicited on examination, and thus cursorily narrated, I had no difficulty in telling the patient that he had no aneurism of any kind, that he was in perfect health, fit for any occupation, and only the subject of a very trifling malformation. I need not say how thankful and pleased he was. I have seen him repeatedly since that time, but have heard no more of his aneurism.

Now, this case is by no means a peculiar one; there are many such. Very possibly there may even have been some such cases whose lives have been embittered, or whose friends have been made unnecessarily anxious, by an unguarded prognosis; and to enable you to avoid this is the object of the present lecture. Hitherto these arterial malformations have been, at least of late years, almost entirely overlooked. Indeed, from a physician's point of view—that of differential diagnosis and prognosis—I may say that I know of no place where they have been referred to at all, except in a short paper by myself in the *Edinburgh Medical Journal* for February 1871, where I have related one case in which malformation of the aorta gave rise to the suspicion of aortic aneurism.[1] From an anatomico-pathological point of view, such cases have, however, long been well known; and though, as already stated, they have been too much overlooked of late years, yet Morgagni,[2] Watzel,[3] Vrolik,[4] Otto,[5] Tiedemann,[6] and others, have recorded many interesting cases; and in quite recent times the whole subject has been gone over from the same point of view by Dr Barkow,[7] Professor of Anatomy at Breslau, who has figured a great many examples of this interesting peculiarity, one of the most remarkable of these being that contained in the fourth plate of his earlier work, in which the ascending aorta reached the surface of the chest between the third and fourth, and second and third ribs on the right side, and the descending aorta between the second and third ribs on the left side, the convexity of the scoliosis being to the left.

---

[1] Cases Illustrative of some Difficulties in the Diagnosis of Aneurism close to the Heart.—*Ed. Med. Jour.*, Feb. 1871, p. 707.

[2] De Sedibus et Causis Morborum. Ebroduni in Helvetia, 1779. 4.

[3] De Efficacia Gibbositatis in Mutandis Vasorum Directionibus. Trajecti ad Viadrum, 1778.

[4] Dissertatio de Mutato Vasorum Sanguiferorum Decursu in Scoliosi et Cyphosi. Amstelodami, 1823.

[5] Lehrbuch der Pathologischen Anatomie. 1830.

[6] Supplementa ad Tabulas Arteriorum Corporis Humani. Heidelburgæ, 1846. Hartmann, Cheselden, Ludwig, and Wenzel have also described these alterations of the vessels from a pathological point of view.

[7] Die Verkrummungen der Gefässe dargestellt von H. C. L. Barkow, M.D., etc. Fol. Breslau, 1869. Erläuterungen zur Lehre von den Erweiterungen und Verkrummungen der Gefässe von H. C. L. Barkow, M.D., etc. Fol. Breslau, 1871.

In the case I have just narrated, the scoliosis was so slight, while scoliosis to a much greater extent so frequently occurs without any visible alteration in the position of the aorta, that in it there was, in all probability, slight malposition of the vessel itself rather than any mere abnormal deflexion of the artery due to the trifling curvature of the spine which existed; but this, instead of diminishing, rather enhances the importance of the case from a diagnostic point of view. For while it is of consequence to remember that, in rickety chests, the aorta may be so curved as even, in the absence of any dilatation, to make its pulsations visible either to the right or left of the sternum, and so to simulate an aneurism, it is of even more consequence to remember that, in rare cases, similar abnormal pulsations may be visible from trifling alterations in the position of the vessel itself, apart from any marked changes in the bony skeleton; just as we must also never forget that an aortic aneurism may coexist with malformation of the thorax, with or without scoliosis, and that, whatever may be the condition of the skeleton, any abnormal pulsation must be carefully considered from every point of view before we even attempt to determine upon what it actually depends. For we must never forget that the art of diagnosis is based upon an estimate of probabilities, and that its approximate accuracy will depend, first, upon the precision with which we have made our preliminary observations, and, second, upon the intelligence and capacity employed in our reasonings regarding these observations. For example, any cursory observer who had seen, but not duly considered, the case just related to you, and who shortly afterwards was brought face to face with the woman Murray, now in bed 15, Ward XIII., would probably feel little hesitation—might even plume himself upon his sagacity—in placing them both in the same category; and yet he would thereby commit a most serious blunder. It is true that she has an abnormal pulsation between the second and third, and the third and fourth ribs on the right side close to the sternum, associated with a diminution in size of the left side of the chest, which measures a full inch less in circumference than the right side. It is equally true that she has no scoliosis; but, in the young man's case, that was so slight as to be unimportant; and the diagnosis in either case turns entirely upon quite other points, to which I shall presently direct your attention. I shall, however, first narrate to you the histories of two extremely interesting cases, in which aortic aneurism was very closely simulated by vascular deformity depending upon rickets; and having already pointed out those negative signs which determined the diagnosis in the case first referred to, I shall then cursorily indicate those positive signs upon which we must rely for the definite diagnosis of aortic aneurism, a due consideration of which aided us in arriving at a very different conclusion in respect of the case of the woman Murray:—

CASE I.—G. S., a shoemaker, aged 35, admitted to Ward V., on 5th December 1870, complaining of breathlessness, cough, spit, and occasional hæmoptysis. When about 16 years of age, while acting as a cattle herd, he was occasionally affected with slight rheumatic pains in the shoulders; but excepting a slight attack of ague (in Iowa, U.S.A.), about two years ago, he has not since had either rheumatism or any other ailment, except when about 18 years of age, after being two years engaged in shoemaking, when he suffered from loss of appetite, and occasional squeamishness and faintness; at that time, however, he was well fed, and was able to keep at his work. Just then, however, his thorax became gradually deformed; his spinal column has a double lateral curvature—the thoracic curve being to the right, and the compensatory dorso-lumbar curve to the left—while the lower dorsal and lumbar vertebræ are so twisted that the transverse processes lie somewhat diagonally; the ribs are broad and flat, the upper ones apparently wider apart than usual, the lower ones below the sixth crowded together. The anterior part of the thorax is also so altered that the right side is round and prominent, while the left is flattened and compressed; the lower part of the sternum is concave, as is so usually the case in cobblers. Both feet are twisted outwards, but he says they have been so from infancy.

About a year previous to admission, he began to have at times a severe pain across the front of his chest below the mammæ; this pain usually came on while stooping over his work, but at times when he was otherwise engaged, occasionally even when in bed, and this it did sometimes for two weeks at a stretch, compelling him continually to shift his position, and even to get out of bed. He does not think that any change of position gave relief. The pain came on suddenly, was not accompanied by any breathlessness, and it usually went away suddenly; he attributed it to the pressure of the boot on his breast necessary in his trade.

About six months previous to admission, he first began to have shortness of breath, earliest felt on making any sudden movement, such as raising himself quickly from a stooping posture, but it speedily came to follow any exertion however slowly made, especially such as ascending a hill, etc. During the summer of 1870, he had considerable cough, and in August of that year when bathing, he brought up some blood mixed with the sputa; this trifling hæmoptysis lasting only one day at this time. His cough then became worse, and six weeks later his hæmoptysis recurred, lasting three or four days. About one month before admission he had a third attack of hæmoptysis, which lasted for three weeks.

On inspection of the thorax, the points already pointed out are seen, and considerable heaving of the precordial region is also observed, the spaces between the fourth and fifth and the fifth and sixth ribs being retracted at every diastole. Between the fifth and sixth ribs lies the lowest point of cardiac pulsation to be seen or felt, the ribs beneath this closing up, and almost overlapping each other, and extending down into the pelvis; but this is no apex beat, but a broad impulse diffused over a space of two inches and a half. The large arteries of the neck pulsate visibly with great force, and some thrill is felt at each pulsation. On laying the hand over the upper part of the thorax, a considerable amount of thrill is felt, chiefly towards the right edge of the sternum and along its upper border. On putting the finger into the tracheal fossa, the aorta is felt pulsating within half an inch of the upper edge of the sternum. Between the second and third ribs, on the right side, a pulsating tumour is to be felt, extending for about an inch to the right.

On percussing on the left side, one inch from the edge of the sternum, the percussion note is found to be clear down to the upper edge of the fourth rib; dulness extends from that to the upper edge of the sixth rib, and beneath this nothing is perceptible on percussion but the tympanitic note of the stomach. Dulness in the nipple line begins about an inch to the right of the sternum, and extends across for a distance of four inches and three-quarters. Along the right edge of the sternum, from the upper edge of the second rib down to the liver dulness, for a distance of one inch to the right, the percussion note is dull.

On auscultating over the lowest part of the cardiac impulse, the first sound is heard somewhat muffled, and the second is replaced by a murmur. Between the second and third ribs, at the right edge of the sternum, a loud, rough murmur replaces the first sound completely, and the second sound is also wholly replaced by a softer blowing murmur; both of these sounds are louder and harsher over the pulsating tumour already mentioned, and become softer in character, though remaining equally distinct, on auscultating over the sternum. These bruits are propagated upwards into the vessels of the neck, and across the sternum to the left. The pulmonary second sound is distinctly audible just over the left edge of the sternum close to the second interspace, within which it is only faintly to be heard close to the sternum. The pulse is 86, full, and jerking, and is also delayed, the radial pulse coming just between two cardiac impulses, and as nearly as possible equidistant from both. At present his cough is nearly gone, but he still has a slight amount of purely catarrhal expectoration. Other phenomena unimportant,—either natural, or without bearing on the case.

In this case the whole of the urgent symptoms and signs were those of incompetence of the aortic valves, phenomena which are always rare when the disease is mainly of the nature of a sacculated aneurism just above the valves, in which, according to my experience, the symptoms are never cardiac, even though some of the signs are those of aortic incompetence; and I refer mainly to the murmurs—for where the disease has originally been a sacculated aneurism of the aorta, the heart is rarely much implicated, even after the signs of aortic valvular incompetence have been superadded. Further, the signs present—especially the comparatively slight amount of dulness to the left of the sternum, and the greater amount of dulness to the right, and especially the fact that the pulmonic second sound was scarcely audible at all to the left of the sternum, and only became so after we had placed the stethoscope upon that bone—all pointed to the great probability that the heart had been slightly dislocated to the right,—a fact which, if correct, would of itself sufficiently explain the appearance of a pulsating tumour between the second and third ribs on the right side, and extending not more than one inch from its right margin, as this is just the situation in which the aorta might be expected to appear in such a case. The probability that this was the source of the pulsating tumour was further increased by discovering from the augmented dulness across the upper part of the sternum, and the feeling of pulsation in the tracheal fossa, that the transverse portion of the aorta was dilated; because all experience teaches us that in a case of aortic incompetence with a dilatation of the transverse portion of the aorta, dilatation of the ascending portion is almost certain to exist. But any dislocation of the heart to the right would suffice to push even a normal aorta from under cover of the sternum, and still more, therefore, one which is dilated. Besides, the slight increase in loudness of the abnormal murmur in this case was no greater than what might be expected from the closer approximation to the ear of the pulsating tumour in the second intercostal space, as compared with an artery lying beneath the sternum, and wanted the considerable accentuation of such murmurs as heard over an aneurism. Moreover, all pressure symptoms were entirely absent. The lung on both sides was evidently displaced, and to its absence was unquestionably due the diastolic dimpling of the fourth and fifth interspaces on the left side, while the proximity of the aorta to the walls of the chest was undoubtedly the cause of the greater loudness and roughness of the bruit over the tumour than over the sternum. The slight displacement of the heart was probably caused by the deformed condition of the chest due to rickets, the base of the heart being more displaced than the apex, as if the enlarged heart resting on the diaphragm in this deformed and stunted body leaned somewhat forwards and to the right into the bulging right half of the thorax; and this I have no doubt it did.

This patient died on 1st January 1871, from sudden œdema of the lungs; and though a proper examination of the body was refused by the friends, I was enabled satisfactorily to ascertain that, though the aorta was dilated and projected in the direction indicated, there was no saccular aneurism connected with it.

There can be no reasonable doubt that in this case the cardiac disease was primarily due to the obstruction opposed to the circulation by the sinuosity of the arterial trunks produced by the distortion of the skeleton, which, as Barkow has pointed out, has an unmistakable influence in promoting dilatation and hypertrophy of the heart.[1] The increased energy of the heart in such cases has also a special influence in producing dilatation of the aorta, especially of its ascending portion,[2] an influence which we can readily understand may be modified very considerably by the structural condition of the aorta itself.[3] When once dilatation of the ascending aorta is produced, the secondary development of incompetence of the aortic valves is merely a question of time.

The next case was repeatedly under observation, and was always an object of great interest.

CASE II.—M. P., a milliner, unmarried, aged 46, admitted to Ward XIII. on 26th January 1871, complaining of cough, feeling of oppression over the trachea, and of general debility. She had been a milliner for thirty-three years, working during the busy season from 6 A.M. of one morning to 1 A.M. of the next. As the result of this overwork she was never strong, and never free from headache; still, she could take her food well, and was able to continue her work. About sixteen years before admission, she first perceived that her right shoulder was somewhat distorted. Since that time this, as well as the distortion of her body, which she also then first noticed, has gradually increased. But the change has been gradual, and she suffered from no illness more severe than a mere casual and temporary catarrh, till seven years before admission, when she suddenly found herself affected with a cough, which has never since entirely left her. She was not ill or feverish at that time, and was unconscious of having caught cold. Two years subsequently, however, this persistent cough was aggravated by an attack of bronchitis, which lasted for five weeks, and broke down her health very much. Since that time her bodily distortion has steadily increased; and about a year after this her bodily distortion and debility became so great, that she was compelled to give up her occupation. Since then she has been constantly subject to a dull aching pain, referred to the right shoulder-blade, the intensity of which has gradually increased. Since then she has also been subject to pain in the region of the stomach, more or less constant, but worse when the stomach is empty, and somewhat relieved by taking food.

For some years she has been aware of a pulsation in the front of her neck, but her attention was not particularly directed to it till the morning of the 23d of January 1871, when, after a severe fit of coughing, she accidentally observed that where this simple pulsation formerly existed there was now a throbbing swelling equal in size to a hen's egg. A feeling of tightness and choking over the chest and lower part of the throat, which subsisted after the cessation of the paroxysm of coughing, induced her to look at her throat, and so to discover this pulsating tumour. On admission, the patient was seen to be much emaciated and etiolated; there was considerable scoliosis of the spinal column in the dorsal region, with right side convexity, some protrusion backwards, and compensatory lumbar curve to the left; the thorax on the right side was thrown outwards and backwards, and flattened laterally; on the left side the ribs were indented and compressed together.

---

[1] Die Verkrummungen der Gefässe, s. xv.

[2] Op. cit., s. xxxv.

[3] Op. cit., s. xv.

On palpation, the only pulsation to be felt on the left side is between the third and fourth ribs, about half an inch to the left of the sternum. To the right of the sternum, pulsation is felt in the first, second, and third interspaces. This pulsation was most forcible and distinct in the second interspace, where it extended a couple of inches to the right of the sternum, and in this situation a considerable thrill was to be felt. In the lower part of the neck, just over the suprasternal notch, a pulsating tumour, evidently a dilated artery, was felt crossing the trachea and dipping beneath the sterno-cleido-mastoid muscle, being apparently continuous with the right subclavian artery, which, as well as the brachial, was also large and dilated. The left subclavian was also dilated. The aorta was not felt on passing the finger deep into the tracheal fossa. All the arteries at the root of the neck pulsate strongly.

On percussion, the cardiac dulness on the left side was found, at one inch from the sternum on the left side, to commence at the upper border of the second rib, whence it extended down to the liver dulness. From the upper border of the second rib, dulness across the sternum gradually rose to the lower border of the first rib, and at the right edge of the sternum this dulness passed outwards between the first and second ribs to a distance of two inches from that bone, passing downwards to the liver dulness in the same parasternal line. At the level of the fourth rib the transverse dulness is four inches and a half. On auscultating over the cardiac pulsation to be felt between the third and fourth ribs, half an inch to the left of the sternum, both sounds are to be heard, neither very pure. Over the fifth rib, one inch from the left edge of the sternum, these sounds are to be heard with greater distinctness and purity, but no pulsation is to be felt. In the second interspace to the left, distinct but impure first and second sounds are both to be heard. In the second interspace to the right of the sternum, the first sound is impure, and the second is obscured and almost entirely replaced by a diastolic murmur. Over the pulsating tumour already referred to as chiefly lying between the first and second ribs to the right of the sternum, where the pulsation is most fluid and most forcible, we have a loud systolic murmur, followed by a less distinct diastolic murmur. These murmurs obviously have their position of maximum intensity in this situation, and from it both radiate outwards in all directions, the systolic murmur extending upwards with most distinctness, the diastolic murmur being propagated with more distinctness downwards, but *pari passu* less distinctly, being more faint *ab origine*. The pulmonary percussion was equal on both sides, and the respiration also equal, though neither could be held to represent an average normal, the one being slightly higher in pitch, the other slightly rougher in character. No other signs or symptoms of any importance could be elicited, except that over the pulsating tumour already referred to considerable systolic thrill could be perceived.

Obviously the diagnosis in this case was not far to seek; the absence of the slightest sign of any abnormal pressure, in spite of the existence of an abnormal pulsating dulness in the first interspace to the right of the sternum, was quite conclusive as to the non-existence of any sacculated aneurism, or even of any considerable arterial bulging of a cirsoid character in that region, and equally conclusive as to the pulsation being simply arterial in character; this being further confirmed by the strict limitation of the dulness to the pulsation. But a pulsating arterial tumour in the region referred to could only be aortic in its origin; and, if only a simple dilatation, must be of unprecedented dimensions to present so large a superficial area of dulness. The position of the cardiac pulsation, however, as well as the situation and form of the area of cardiac dulness, assured us that the heart was tilted upwards as well as thrown over more to the right of the sternum than usual; hence we had the ascending portion of the aorta passing more directly outwards to the right; and, as the transverse portion of the arch did not rise much higher, nor take a wider sweep than ordinary, it must necessarily have made, with the ascending part, a more than usually acute angle. Hence, of course, compression of the lumen of the vessel at this acute angle, and hence, also, a complete explanation of the systolic thrill and the loud systolic murmur, necessarily due to the formation of fluid veins where the blood passed through the constricted part of the artery into another portion, which possibly enough might be more dilated than usual, although that was by no means essential. As for the diastolic murmur, in the absence of any saccular aneurism, which we believed not to exist, its only possible cause must have been regurgitation through the aortic valves, the result of the increased pressure due to accumulation of blood in a dilated ascending aorta, the effect of which in every case must certainly be ultimate rupture of the valve from hydraulic pressure, an inevitable physical result which might possibly enough be complicated and hastened by the certainly less inevitable physiological results of pressure — local endocarditis, thickening and shrivelling of the valve.

This patient died suddenly from syncope, in Ward XIII., on 7th November 1872. At the autopsy the lungs were found congested and œdematous. The heart was tilted up, and the great vessels were displaced. The ascending aorta passed outwards to the right more than usual, and the transverse portion passed off from it at a somewhat acute angle. The innominate was two inches long and twice its usual diameter. It came off from the aorta further to the left than usual, coming to the surface at the left sterno-clavicular articulation, and passing across the trachea in the lower part of the neck to the edge of the right sterno-cleido-mastoid muscle, beneath which it dipped and divided. The aorta was slightly atheromatous and dilated at its commencement, but perfectly free in every part from any saccular enlargement; its valves were much thickened and slightly incompetent. The heart itself was hypertrophied and dilated, particularly on its right side, but to no great extent. The mitral valve was competent, but had a few vegetations on its upper surface. The tricuspid valve was healthy; its opening admitted five fingers. The pulmonary valves were healthy and competent. The abdomen was filled with fluid, the liver was slightly enlarged, and the kidneys in a state of chronic congestion. No other organ was examined.

Here, then, you see we had another well-marked example of the influence of rickety distortion of the skeleton in giving rise to abnormal conditions of the bloodvessels of such a character as very closely to simulate aneurism. Of this peculiar simulation, I think that this latter case may very well be considered rather an extreme example; and between it and the case with which I commenced this lecture, there are infinite gradations, examples of which are of occasional, though not very common, occurrence. It is well to be aware of, and prepared for, the occurrence of such cases, and thus avoid falling into mistakes, which, in any case similar to that I have just referred to, might be fraught with very serious results to one or other, possibly to both, of the parties concerned.

You will, therefore, remember that even a fluid pulsation in any of the intercostal spaces is not necessarily an aneurism. That the absence of any history of empyema, or even the distinct connexion of the pulsation with the aorta by continuity of dulness, is no proof of its being aneurismal in character, either in the sense of a sacculated aneurism, or of its being a simple dilatation. Because, even in the normal condition of the skeleton, the aorta may exceptionally be so deflected as to cause its pulsations to become perceptible in one or other of the intercostal spaces; while this occurrence of abnormal intercostal pulsation of simple arterial origin is a matter of no unfrequent occurrence whenever the thoracic skeleton is deformed by rickets; while we must also never forget that, even in chests deformed by rickets, sacculated aortic aneurisms may occur.

Where there is no twisting or bending of the artery, and no aortic regurgitation, the first case narrated would seem to show that—as we would naturally expect—there is no murmur to be heard over the abnormal pulsation, and that the only sounds audible are those ordinarily heard at the base of the heart, the second, in particular, not being in any degree accentuated. Whenever, however, we have a murmur of regurgitation developed at the base of the heart, that of course is always more or less audible over the course of the ascending and transverse portions of the aorta; and, apart from any constriction at the mouth of the aorta, we are sure to have a systolic murmur developed over any part of that artery wherever any sharp twist or bend occurs. Moreover, as any abnormal intercostal pulsation of the aorta must be nearer the surface than any normally situated part of that artery, all sounds in its course are liable to be heard louder over that pulsation than elsewhere, yet without accentuation. But whenever over any abnormal pulsation we have marked accentuation of any abnormal, but especially of the normal, particularly the second cardiac sound, we must be suspicious of the occurrence of a sacculated aneurism, and that even though rickety malformation of the chest be present. To make our diagnosis certain, however, we must be able, not only to connect the pulsation directly with the aorta, but to show also that the dulness subtended by that pulsating body occupies a space greater than would be the case were the pulsation due to a simple cylindrical vessel such as the aorta. Extension of dulness, therefore, beyond the pulsating tumour, associated with the signs and symptoms of pressure upon one or other, or upon several of the neighbouring organs, are among the most certain indications of the existence of a sacculated, or even of a cirsoid, aneurism. And from these signs and symptoms of pressure, associated with certain other phenomena which indicate the dependence of that pressure upon an elastic and distensile body of varying dimensions, we are often able to prognosticate the existence of an aneurism, even when no pulsating tumour has been detected; and, of course, we are in a still more favourable position for determining the existence of an aneurism when a pulsating tumour is perceptible. But I must reserve the full consideration of these phenomena till I come to speak of the diagnosis of thoracic aneurism.

ARTICLE II.—*Royal Edinburgh Asylum Papers. Two Cases of Tumour of the Brain Contrasted.* By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum.

(*Read before the Medico-Chirurgical Society of Edinburgh, 5th May.*)

A. E., æt. 62 on first admission in March 1872. First attack of insanity, which had been of short duration previous to admission. Her hereditary history unknown, and the exact course of her attack also unrecorded. On admission, she laboured under an attack of subacute maniacal excitement, with loss of memory, incessant incoherent talking, and changing delusions as to being turned inside out. She was looked on as a case of senile mania. There were no paralytic symptoms noticed. This excitement soon passed off, and she was discharged recovered in six weeks after admission.

She kept pretty well for a year, when she was admitted again (March 1873), labouring under the same kind of excitement as before, but in a rather more acute form. She was more restless, quite delirious, and incoherent, and fancied that every one was begging from her. She was dirty in her habits for a time, but there was no evidence of motor paralysis or evident organic disease of the brain on admission.

She soon settled down into a quiet, slightly demented old woman, who could or would not employ herself in any way. She had no delusions of any kind. For the next six months she was subject to slight transient attacks of excitement of a few days' duration, appearing to get weaker in mind after each attack. She was not specially irritable during or between the attacks. About that time—that is, about eighteen months after the first attack of mental excitement—it was noticed that she was slightly hemiplegic on the right side after one of her attacks of excitement. This rapidly passed off, but recurred over and over again, always after mental excitement, the curious thing being that sometimes one side of the body was affected, and sometimes the other. She got steadily weaker in muscular power, fell off in flesh, and became more forgetful and demented, though when roused by questions she would answer coherently, until, in three months from the time she had the first attack of hemiplegia, she was almost constantly confined to bed. She lingered on, however, for another year, being up to within three months of her death subject to the attacks of excitement, which latterly consisted simply in her being restless and apt to come out of bed for about a day at a time. When the hemiplegic attacks came on she could not speak, her tongue and labial, as well as her facial, muscles being paralyzed on one side. Towards her death both sides of the body were permanently paralyzed, but the left more so than the right. There was never any tendency to permanent contraction of the muscles in any part of the body. She was wet and dirty in her habits, but never had any tendency to bed-sores. She never lost her sight, and she spoke slowly, like an old person. She lingered at the end for months after she was expected to die, not being able to articulate at all for the last six weeks of her life. She always ate well, digested well, and was regular in her bowels, up to near her end. She died of sheer exhaustion, without any convulsion, on the 5th April 1875, three years after her first mental attack, and eighteen months after the first attack of hemiplegia.

Post-mortem Examination.—The body was very much attenuated indeed. *Head.*—Skull-cap slightly unsymmetrical, right side bulging. The dura mater had an opening in it about three-quarters of an inch in diameter, in the middle of the frontal region, through which part of a tumour projected. On removing this membrane, this tumour was found slightly attached to it, and embedded in the brain between the two hemispheres, but projecting much more into the left than the right anterior lobe. This tumour was scarcely adherent to the brain at all, but had pushed the cerebral structure out of its way; and the convolutions in contact with it were not apparently softened, and not much atrophied. It was almost globular in shape, about an inch and a half in diameter, and in consistence fleshy rather than fibrous. On section it was found to be of a grayish-white colour, easily lacerable, and showed a slight tendency to break down in the centre.

Near the tumour the dura mater, pia mater, and arachnoid were slightly matted together, but they did not adhere to the brain. The tumour seemed to have originated in the pia mater; the dura mater was very much thickened, and had three thin bony plates on its inner surface, along the junction of the falx, but to the left side just behind the vertex. The largest was three-quarters of an inch in circumference.

The arteries everywhere were excessively atheromatous, their calibre enlarged and patent, those at the base very tortuous.

On section, there was great irregularity in the vascularity of different parts of the brain-substance, some parts being excessively pale, and others very vascular. There were a great many small irregular patches of a gray absorptive degeneration throughout the corpus callosum, optic thalamus, and corpus striatum. There was considerable general atrophy of the convolutions at the vertex; the anterior pyramids of the medulla oblongata appeared somewhat flattened.

Microscopic Examination.—The tumour was found to consist of fibres and cells in about equal proportions, the cells being small, nucleated, and uniform in size. Both fibres and cells were disposed circularly round centres, the latter generally with extreme regularity in concentric rows, looking, in a large microscopic section, like an aggregation of small tumours. The centres of these concentric circles of fibres and cells seemed in some cases to be masses of nuclei, and in others very curious flattened circular bodies, with a concentric marking, very broad and coherent, and, but for their large size, very like large regularly-formed amyloid bodies. These took the staining in sections coloured by carmine, and were only seen after the section had been well cleared; but there were other curious irregular masses of granular material in the tumour which did not stain. The sections in this and the following case were made for me by Dr J. J. Brown.

The spots of "gray absorptive degeneration,"—as I have called them, because I think this term more clearly expresses their true pathological nature than any other,—on section, were found to consist chiefly of neuroglia (fibres and nuclei), compound granular bodies, and masses of hæmatoidin crystals.

J. W., æt. 25, prostitute, admitted 28th January 1874. No history, except that she was a prostitute, who was said to have wandered from Glasgow, and was apprehended by the police; but she had been earning her own livelihood up till a month of her admission; and an aunt of the patient informed me that three weeks before she was simply stupid, irritable, and melancholic. On admission she was confused and depressed-looking, but could not speak. Scarcely appeared to understand the questions put to her. Memory almost gone. She was a thin miserable-looking creature, frightfully dirty, with a vacant, confused, stupid look, who could give no account of herself. Had a black eye. Pupils unequal, right being larger than left, but both were slightly sensitive to light. Motions slow, and gait not very steady; and the left side was weaker than the right. Her tongue was foul, bowels constipated, appetite poor, pulse 70, and weak; temperature 97·8°.

It was found that she could not dress herself or comb her hair, but could feed herself. Complained at first of no pain in head, but the left side of her chest was painful and tender, so that she complained much of it when she was being dressed. When asked to do anything, such as to dress herself, said she could not do it. The day after admission, her temperature was 100·3°; she had no appetite. She had a dazed, pained look in her face. Could answer a question or two in a hesitating way, some time after asking, as if it was long before the impression had reached her sensorium.

Two days after admission, during the night she had six very severe epileptic fits, during each of which she ground her teeth very much indeed, and kept grinding her teeth between the fits; she did not bite her tongue. On the following morning she was very stupid indeed; the pain in the left side was intense, so that she could not bear to be touched there. She could not answer or understand questions, or put out her tongue. When she got up for a few minutes out of bed to have it made, she turned round and round from right to left during the whole time till she went to bed again, though she was so weak on her legs that there seemed a danger of her falling every minute.

After this she got slowly a little better, until she got much better than on admission. She often complained of frightful headaches. She had several epileptic fits of the same character as those described, but not so severe.

When in her better way, the account she gave of her fits was that they had come on after a man had struck her on the head, shortly before coming here. She said she suffered agony in her head, that it was like to fall in two; the headache was chiefly across the brow, and was worse in the mornings.

On the night of the 23d February, she died suddenly, whether in a fit or just after one was not quite certain; but the night-ttendant, who came in when she was *in articulo mortis*, did not bserve any convulsion or sign of it.

Post-mortem Examination, 72 hours after death.—*Head.*—Skull-cap symmetrical and normal in structure. Dura mater slightly thickened, but not adherent. Surfaces of brain and pia mater pale, and abnormally anæmic. The convolutions were flattened-looking. Sulci shallow. On section, the brain-substance was found pale and anæmic at the vertex, but with the puncta quite distinct.

In the front part of the anterior lobes of each hemisphere, about the level of the corpus callosum, was found a tumour; that on the left side being about the size of a walnut, and that on the right about the size of a pea. Both tumours were situated near the fissure, so that they were in contact; they did not project in any way beyond the normal outline of the brain, and were embedded in both the gray and white substances of the convolutions. They did not in any way push the brain-substance aside, but seemed as if the substance of which they were composed had been deposited in the brain-substance. They were of a grayish-white colour, hard and elastic. Their substance intermixed with the gray matter of the brain, throwing roots into it, and the brain-substance running into the tumours. There was a line of red ramollissement, and minute apoplexies in immediate contact with the morbid product, and then a considerable space of brain-substance—on the left side, extending throughout the white of the whole anterior lobe, and a lesser tract on the right side—in a state of white ramollissement; this gradually passing into healthy brain-substance. The effect of the morbid product was particularly well seen on the right side when carefully examined, on account of the process being more recent there and the deposit much smaller.

The brain-substance at the base was congested, but was otherwise normal; the arteries throughout appeared healthy.

Microscopic Examination.—Sections of the tumour or rather deposit showed that it was chiefly made up of badly-formed cells, with granular contents, without nuclei, and embedded in a dense stroma of granular matter, each granule being very distinct, and refracting light very markedly. The cells were disposed in some places in lines, and in other places in concentric layers round small vessels. Along with those cells there were many granular masses of blood-colouring matter.

The arteries in the tumour were found in all conditions, from perfect health to complete obstruction. In most cases their outer coat was much thickened, and in some cases there was an adventitious deposit round them in concentric layers. In some instances they could be distinctly seen to have their calibre obstructed by masses of granular matter, in other cases by masses of the cells I have described, while in some cases they looked as if squeezed and shut up as if by pressure from without. In some places they could be seen with wide perivascular canals, partly filled up by a granular deposit.

Where the syphilitic deposit joined the unaffected brain-substance, the white fibres could be distinctly seen running into it, getting broken up, swollen, and distended, and much mixed with compound granular cells and hæmatin deposits.

The development and different degrees of organization of the deposit could be distinctly traced. In some places, especially near the surface of the brain, it was simply granular, the granules being, in many cases, disposed concentrically round the vessels, this arrangement extending to a long distance from the coats of the vessel; then the cellular formation could be traced, the cells at first being few, very irregular, and ill-defined, and with no distinct outline. Then the cells would seem to occupy nearly all the space.

An examination of prepared sections of the brain in the parietal lobe, a considerable distance from the tumour, showed—1. Very distinct and beautiful microscopic apoplexies between the pia mater and brain; 2. A great number of compound granular cells; 3. Masses of blood-colouring matter; 4. Granular degeneration of many of the nerve cells; 5. Masses of granular matter, chiefly hæmatin, surrounding many of the small vessels; 6. Marked thickening of the coats of many of the arterioles; 7. A great abundance of small, light-refracting granules.

Remarks.—These two cases, though very imperfect as regards their history previous to coming into the Asylum, and the symptoms, mental and bodily, that characterized the beginning of their diseases, yet are most instructive as examples: the one of chronic but steadily-advancing brain changes, all of the nature of degenerations; the other of an acute and specific disease of the organ. Both are classed as tumours of the brain, the tumour in each occupying almost the same position in the anterior lobes of the organ. Here the resemblances end, however, and the most marked differences and contrasts begin.

In the one case, we have the symptoms arising three years before death—and being mental symptoms alone for a long time—and at times so abating that they seemed to have disappeared; in the other, they showed themselves certainly within three months before death, the epileptic attacks soon followed the melancholia and cephalalgia, and their course was uninterrupted. The slowly advancing tumour in the one did not much affect the brain-structure by direct pressure, for it made a nest for itself in the convolutions, which seemed to have been just pushed aside. The syphilitic deposit in the other case, though not one-fifth the size of the tumour, on the other hand, had caused intense irritation in the brain, extending back throughout the whole anterior lobes.

In the one case, during life there had never been any tendency to convulsion; in the other, convulsive symptoms of the most severe kind were present. In the one case, there was at first only transient hemiplegia; in the other, there was, from the beginning, great and permanent weakness of all the voluntary muscles.

Mentally, the one case might have been described as one of slowly advancing dementia, with slight and transient outbursts of excitement, not very essentially different from many cases of dotage in people of that age; the other was one of melancholia and stupor, with rapidly advancing destruction of the mental faculties; reason, emotion, and memory being all affected. The second (J. W.) was a characteristic case of the "syphilomatous insanity," described by Mr H. Hayes Newington.[1]

The suddenness of death in the syphilitic case is, in my experience, a very common phenomenon in cases of tumours of the brain that grow rapidly, or have attained a large size, or cause irritation in the surrounding brain-substance. Three of the eight cases I have had under my care have died in this way.

The tendency to periodicity and intermission in the case of the slowly-advancing tumour is not to be accounted for, in my opinion, pathologically. There were no evidences of successive apoplexies. It will be remembered that she had attacks of mental excitement, followed by slight attacks of hemiplegia, first of one side of the body and then of another. It is certainly extremely difficult to explain such transient attacks of hemiplegia, but I think they may be regarded as analogous to the melancholia and mental lethargy that so often succeed an attack of mental excitement, only affecting the motor centres in the brain. It was seen after death that the corpus striatum was much affected by patches of degeneration. Now, this probably implied that its function of the chief motor centre in the brain was much interfered with. All nervous disorders are eminently remittent; and it is quite as conceivable to have remittent hemiplegia from a permanent lesion as it is to have remittent neuralgia from the same cause.

In a paper on Tumours of the Brain I published some years ago,[2] I directed attention to several pathological conditions of the brain which different kinds of tumours, growing in different ways, cause, viz., 1. "An irritation tending to ramollissement in the nerve-substance with which they are in contact;" 2. "They cause pressure on distant parts, which in its turn causes an alteration of the structure and nutrition;" and, 3. "They set up progressive disease and degeneration of certain parts of the nerve-structure, the true nature of which is as yet not very well known, but it seems to be in some way directly connected with the essential nature and constitution of all sorts of nerve-substance, whether cells or fibres." The first case clearly caused the two latter processes. I look on the gray degeneration, the thickened membranes, and bony plates, as pathologically exactly analogous to the optic neuritis, which is so frequent a result of tumours. The degeneration in the motor centres is especially interesting, as I am not aware that its occurrence has been pointed out as the result of the growth of a tumour in the brain. The second case was an admirable example of the irritation and ramollissement caused by certain rapidly-growing tumours and deposits.

---

[1] Journal of Mental Science, January 1874.

[2] Ibid., July 1872.

In regard to the direct dependence of the symptoms during life on the tumours, I am not sure that in the first they could be referred to the tumour alone, but rather to it along with the series of distant pathological changes which it had set up (the degeneration, etc.). The tumour had most likely been slowly growing for years before there were any symptoms whatever.

The microscopic appearances found in and around the syphilomatous deposit are, I think, of great interest, as showing that it was in this instance thrown out amongst the brain-substance, destroying and disorganizing it (this no doubt corresponding to the irritation of the motor and mental functions during life); it then rapidly organized itself in a low form of cellular life, and it affected the arteries in every possible way by squeezing them, and so shutting them up, by thickening their coats; and, lastly, by getting inside them and developing there. This last mode of syphilitic affection of bloodvessels I am not aware of having seen described before.

The discussion of the tendency to apoplectic effusion, as seen in the quantities of blood-colouring matter to be found in every section of the tumour or the brain near it, would lead me into the very wide but most important question of the blood stasis that seems to take place in the capillaries of the brain in nearly all acute brain irritations and diseases—a question that I think has not had nearly enough attention directed to it, nor been at all sufficiently considered in relation to the pathology of these diseases.

ARTICLE III.—*On a New Operation for the Cure of certain Cases of Aggravated "Knock-Knee."* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.

ON the 3d of March last, a little girl, æt. 6, was brought to me from Glasgow, on account of a serious deformity of her right leg. Mechanical means had been employed for two years with the object of relieving the condition, but without success, and the deformity was steadily increasing in severity.

A careful examination determined an aggravated form of "knock-knee," and it was found impossible, in any position of the limb, to bring the leg into a straight line with the thigh, the head of the tibia forming a considerable angle with the condyles of the femur. The femur had a distinct bend inwards and forwards about the nction of its lower and middle thirds, and the condyles of this bone were much more oblique in their direction than in the natural condition. In Fig. 1 the position of the bones is illustrated diagramatically. The adductor muscles were somewhat contracted, and the distortion was such that the patient walked with difficulty. The left limb was well developed and natural in position. A study of the case convinced me that the oblique position of the condyles, the result apparently of the bending of the shaft of the femur, was the principal obstacle which was preventing the tibia and leg being brought into line with the thigh, and it therefore seemed to me, that if this obliquity could be removed, the deformity might be cured or very much relieved.

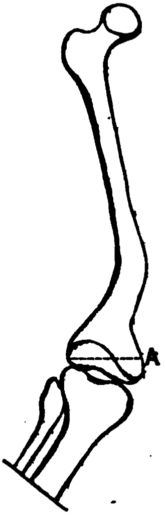


Fig. 1.

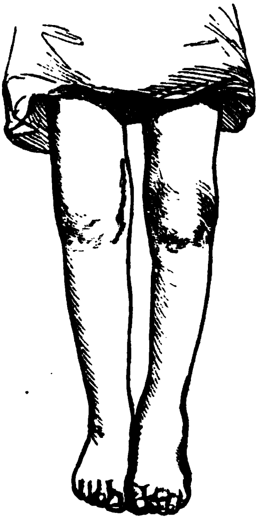


Fig. 2.

Two ways of removing this obliquity suggested themselves. The first was to divide the shaft of the femur at the point where bent; the second, to remove an oblique slice of the condyles. The latter operation would be attended with more risk than the former, because it necessitated the incision of the knee-joint. But some little observation decided me to adopt the latter proceeding, for I felt sure that it would be more effectual than the former, and I trusted that the risks of opening into the joint would be counteracted by the careful use of the antiseptic treatment.

The consent of the child's parents having been obtained, I operated on the 16th of March in the following way:—

An incision, about five inches in length, was made along the inner aspect of the knee-joint, the articulation opened into, the internal lateral ligament cut across, and the patella and its ligament being drawn outwards, the crucial and external lateral ligaments were also divided. An oblique slice (illustrated by the dotted line A in Fig. 1) was then sawn off from the condyles of the femur, the tibia not being interfered with. After the removal of this slice of bone, the leg was readily brought into a straight line with the thigh; and a drainage tube being inserted into the cavity of the joint, a few sutures were applied, and the limb placed on a wire splint, in the straight position. The whole operation was performed under the antiseptic spray, and the usual antiseptic dressing was applied to the wound.

Some suppuration of the wound followed the operation, but this gradually ceased, and, on the 24th of March, the discharge was so slight that the dressing was changed only once in two days. On the 25th of April, the wound was quite superficial; and on the 29th of this month, the wound was soundly healed. On the 6th of May, the patient was allowed to get out of bed, the joint being supported by lateral splints, which were removed daily to permit of passive movements of the joint being made. On the 30th of May, the splints were entirely removed, and the patient allowed to bear weight on the limb. At this date, the limb was perfectly straight, and of equal length with the opposite one. The lateral mobility of the joint was very slight, and very much as in the natural condition. Flexion and extension were very limited. Fig. 2 is a careful copy of a photograph which was taken at this time.

On the 5th of June, I placed the patient under chloroform, and forcibly bent the knee to rather more than a right angle, and I also moved the joint freely, so as to break down the adhesions which had resulted from the operation. No bad consequences followed this forcible bending of the knee; and two days after, the patient was again going about the ward with the help of crutches, and able to bear weight upon the limb, the mobility of the joint being decidedly improved.

Remarks.—I am not aware that this or any similar operation has been before practised in cases of knock-knee, but the successful result obtained in the case reported, encourages me to recommend this method of operating in certain aggravated cases of the deformity which have resisted the division of the biceps tendons, or other tense structures, and carefully-applied mechanical treatment.

The employment of the antiseptic treatment in this and similar operations I consider most valuable, and I must confess that it was my confidence in this treatment which led me to freely incise so important a joint, and to carry out the proceeding described.

ARTICLE IV.—*Remarks on the Present Method adopted for the Disposal and Treatment of the Subjects of Mental Disease.* By WILLIAM YEATS, M.D., etc., Bankfoot, Perth; late Assistant-Physician, Royal Lunatic Asylum, Aberdeen, and Coton Hill Institution, Stafford, etc.

GREAT attempts have been made to arrest the progress of mental disease by close investigation into the causes and the proper mode of treatment, as well as by legislative influences; yet, in spite of these efforts, the affection has been stated, relying on statistics and the reports of the Commissioners in Lunacy, to be steadily increasing, although, at the same time, a great deal has been done for the amelioration of the pitiable condition of the insane.

While we are without precise information regarding the causes of that increase, or the means by which it may be met and checked, it may not appear out of place here to make some remarks, which are the result of several years' observation and scrutiny of the mode in which the subject is dealt with, which, along with the testimony of others, may tend in some degree, however little, to the better dealing with a matter of such importance.

The object here will be to point out wherein the subject before us suffers from imperfect legislation, and to show the results that ensue from this, as well as from the scant practical attention required to be given to the subject during the usual medical curriculum, and to hint at what might in some degree remedy these evils.

In support, then, of the statement that the legislation is defective, it is, I think, sufficient to say that no adequate provision exists for separating the insane from the general community. It is startling to consider that there are, and always have been, thousands of the insane in our midst under no control or supervision. That this is true, however, cannot be denied, when we remember that the inmates of asylums (and their name is legion) have first become insane among their healthy neighbours, and have so lived among them until it has been found necessary to place them in recognised places of supervision. Is it not, then, more startling, since this is so, to contemplate the fact that it is practically the duty of no one to attract attention to the insanity of the individual, with the view of controlling the disease as well as the person? There is no expert or sanitary officer for that purpose. It is left to the friends and neighbours first to diagnose the disease, and really to judge when the individual's restraint is to be effected. Friends, in the majority of cases, do what they can for the individual at home; and many at first not only attempt to hide the truth from their neighbours, but also try to deceive themselves; and when that can no longer be done, they use every effort to secure a remedy, unwilling to the last to think that licensed control is unavoidable, although the aberration is unquestionable and increasing. Neighbours, as a rule, refrain from admitting the individual insane until he becomes a nuisance or a danger. It only becomes the work of a public official to originate the proposal of isolation after the individual has been inculpated for some crime having reference to himself or his neighbour, and often enough the individual is only certified insane after he has put an end to his existence. Experts there are who study and treat the disease, but they have no power to select their cases from the community. The consequence of this is, that, for a considerable time at least, and occasionally for their lifetime, the insane are left masters of their position, in power to disport their fancies, often at the expense of their own lives or those of their neighbours, and perhaps to effect a propagation of a corrupt, if not a stultified, generation. Many cases in point might be adduced, but are unnecessary. There are many such persons living in our midst, while there are but few who, fearful of themselves, would ever dream of giving themselves up for asylum treatment. It is well known that many cases of suicidal impulse are often kept at home for months, until their repeated criminal attempts either weary the patience of their friends, so that they at length get them into asylums, or until they become successful. Consequently, we can easily account for the coroner's verdict, week after week, of suicide from temporary insanity. It is only the other day that the body of a plumber was found in the cistern which supplies the Law Institution, Chancery Lane, with water. At the inquest it was proved to be a case of suicide whilst in an unsound state of mind, the wife of deceased having affirmed that he had been strange in his manner for some time. Likewise cases of homicide, in no small number, are ascertained to be due to the insane impulse, and, I cannot help thinking, might, in many instances, have been prevented had the perpetrator's insanity been looked to; and, on the same reasoning, it may be questioned, with regret, whether homicides in some cases have not suffered the fatal penalty for actions they were not responsible for.

There is another class of cases which might be appropriately included here, viz., the subjects of epilepsy. Many of these are inmates of every asylum; but there are also many such under no restraint, committing crime under different aspects, and suffering the usual penalties. It is well known that epileptics are never to be depended upon, and often eventually become dangerous lunatics. Now, as the asylum has been found the best retreat for many such —not in any degree worse than those unrestrained—why should not the whole, more especially the criminal class, be certified proper persons to be taken charge of in asylums, and their immunity secured on the strength of their irresponsibility? Simply because there is no legislation on the subject, and because those who understand the gravity of these cases have no power to enforce their restraint. One or two cases in point might here be interesting.

Towards the end of 1873, while at the Stafford Railway Station, I observed a poor weakminded-looking wretch in a severe epileptic fit. He was half clothed, handcuffed, and in charge of a policeman. Some of the philanthropic bystanders were splashing cold water on the shivering and writhing object. As the attack seemed to be yielding, he was raised up and helped to move about a little, and soon recovered. The officer in charge, glad to see his protegee fit to proceed on his journey, stated that the lad was being removed from one jail to another, that he was remanded for a serious theft, and that he was an old offender. The lad himself said he had served in the Royal Navy, and had been discharged on account of his epileptic complaint. This poor fellow's very appearance testified his mental incompetency, and, with any alienist as judge, would have justified his irresponsibility. Well might he, in my opinion, have been confined in an asylum, where the chance of executing his propensity to the detriment of others would have been cut off, while also his physical comfort would have been well attended to.

The following case was tried at the Rutland Quarter Sessions, 24th October 1874:—Henry Claydon (19), labourer, was charged with stealing eight sovereigns, the property of Thomas Kerr, at Market Overtown, on the 19th October 1874. The prisoner pleaded guilty. Mr Garton, governor of the jail, said, During the time prisoner had been in the jail, he had several epileptic fits, and they would not be able to put him to any kind of work whatever. The chairman, in sentencing the prisoner, said it was very fortunate for him that the chief constable had found no previous offence against him; the magistrates, on account of his state of health, were inclined to treat him leniently, and he would be imprisoned for six weeks with hard labour.

There is another class which also might be mentioned here, viz., dipsomaniacs. What has been said about the disposal of the previous class is almost wholly applicable to this. Some are under licensed restraint, others are at large. Drunkenness, or even its delirium, has rarely or never proved a satisfactory defence at the bar of justice in any case, from the most trivial to the most heinous; yet, should the habit assume the nature of mania, which it does in many cases, and has been technically denominated dipsomania, it cannot, in my opinion, be reasonably denied that this class is worthy of attention. Attempts, though as yet futile, have been made to legislate for this class, and that itself is a proof of the importance of the subject. There are, I am aware, pure dipsomaniacs in some asylums, who were admitted without difficulty; and I can believe there are some such cases in every asylum. Granting this, why tolerate desperate cases out of asylums, more especially when procurable means short of asylum restraint prove unavailing? For instance, the following case may be noted:—A gentleman of rank and fortune became thoroughly dipsomaniac, and unable to control himself. His lady refused to order his admission to an asylum, and no one could compel it. It was advised that he should travel, which he did in the company of different medical men; but all the while he was allowed to imbibe, because they could not live with him and deny him the pleasure. He came home unimproved, resided with his wife, and had progeny by her. Eventually he refused food, and took nothing but brandy and a little milk. An attendant from an asylum was procured, whose services, according to the will of the master, were little more than valet de chambre. No systematic artificial feeding was attempted, and less was done, were that possible, to restrain the ruling passion. In time, as a natural consequence, the physique, becoming gradually involved in the wreck, gave way; his end, deplorable as it was, being cherished by all about him, while he was allowed to drink to the last. Had this man been put into an asylum early enough, without asserting that he would have been cured of his mania, it would at least have been the means of protracting his life; it would have prevented the chance of propagating issue with such a sad liability; it would have saved a bad impression being made on those of his family young in years; while it would have afforded him some chance of spiritually redeeming himself.

There is another class which yields many cases subject to the same remarks in some measure, viz., the subjects of general paralysis. Among the more prominent symptoms of this complaint, in its first stages, is extravagance, a common result of which is the propensity to theft. Seeing there are no medical experts appointed to distinguish and restrain the irresponsible subject, we have as a result many grievously faulty imprisonments, when these cases are brought for trial, since few but the specialist can put the cause and effect together as far as this complaint is concerned. Many examples of this nature are already on record, and need not here be given.

Turning now from the class which is not treated, or rather which exists out of asylums, to that for which legitimate steps are taken for the treatment which is here argued for, it is my object first to point out, that in many cases there exists no inconsiderable difficulty in legally distinguishing the insane so as to permit of their admission into asylums. The cause of this is to be found in the mode of certification which is so rigorously insisted on by the Lunacy Act, more especially as applied in England, *i.e.*, with more regard to the letter than the spirit of it. For the admission and detention of a patient in an asylum, two medical certificates are required to be filled up, embodying facts of insanity observed by the testifier himself, and facts obtained from others or hearsay evidence. Now, it must be here mentioned, that it is only the first part of the certificate that is enforced; while the latter part, that relating to the history and previous actions of the patient, is purely optional, so much so that it may be, and often is, omitted altogether.

Without remarking on the cause which led to the present form of certificate, without estimating here the worth or inutility of such facts as may be obtained from a brief and formal examination, and without dilating on the real gain which is lost to the asylum physician from the small attention that is required to be paid to the "facts communicated by others," I shall here submit several cases to demonstrate the difficulty referred to above, which is often experienced in certifying the mental aberration of the individual so as to ensure his admission to asylum control in conformity with the said Act. There are many cases where absolute delusions and facts of insanity are not adducible from verbal examination. It is also well known and mentioned by most writers on insanity, that there are many cases of suicidal, homicidal, and erotic impulse, without any existing delusion or derangement of the intellect. In all such cases, even experts are unable to express facts of insanity from a personal examination, even when they could easily enough denominate the individual insane from his history and general comportment, the tone even of his rational answers, and his physical expression. Now, the freedom of such persons would be coupled in every likelihood with dangerous results to themselves and fellow-men. It is also well known that many individuals, the subjects of strange fancies and dangerous actions, surmising and at the same time dreading the result of the physician's interview, pull their senses together, and strive to answer correctly or evade the interrogation, and can often maintain this attitude for some considerable time; thus defeating the examiner in his attempts to elucidate facts sufficient to justify his conviction, and to satisfy the Board. In such cases, when called to certify, the general practitioner either has to strain every means to word his certificate, when he is convinced of his patient's state, or, further, he feels on dangerous ground, and shuns running the risk of certifying if he cannot definitely elicit plain and incontestable facts of mental disorder. As a consequence of this, it can easily be seen, that many cases may remain uncertified, even when attention has been directed to the person's insanity, and the means of controlling it.

The following are some cases in illustration of the above:—E. F., schoolmaster, about 43 years of age, was brought to the Aberdeen Asylum without certificates, and admitted on an emergency certificate, given by the resident physician (which, by-the-by, is a useful provision in Scotland, which does not exist in England). Two medical men were at once procured to fill up the usual forms. All the evidence of insanity they could see was a grave face and little more, if that could be called insanity. He answered every question properly, and in no way committed himself; and, but for the reliance placed in the resident physician, whose practical experience assured them, while he had seen something of the man's behaviour, the medical examiners would not have certified, and the man immediately would have been set at liberty; the result of which would probably have been lamentable, as it was afterwards found out that he had had incestuous connexion with his married sister, and had more than once attempted to drown himself.

In the following case it may be observed, that one hour after the patient was discharged from one asylum unimproved, her insanity could not be certified with the view of sending her to another. To show the nature of the case, the detail may be interesting. E. T., æt. 49, widow, shopkeeper, was admitted to Coton Hill, Stafford, 15th March 1872. Her first attack appeared six years before admission, when it was stated she had had epileptiform seizures. Since then, until admission, she had several attacks of a like nature, the last being five months before admission. The cause was hereditary predisposition, the sister of patient having been insane. On admission she was much depressed, unwilling to speak, would not walk without assistance, and had to be fed. She moaned and rubbed her hands in despair, and muttered to herself when left alone. When urged, she spoke and answered questions reasonably. Medical certificates stated that there was a want of intelligence in her countenance, that she had hallucinations of sight, that she had threatened injury to her friends, and had spoken of self-destruction. She remained irritable, obstinate, disagreeable, talked in an abrupt snappish manner, and was inclined to quarrel and use violence on the slightest cause of annoyance. At times she improved, but soon became depressed again, and indulged in gloomy forebodings. Her friends being unable to maintain her in Coton Hill, even at a reduced rate, steps were taken to remove her to the Stafford County Asylum. Accordingly, on the 17th October, she was discharged unimproved, with the view of obtaining fresh certificates for her immediate admission to the other asylum. Her friends conveyed her to a surgeon who had some experience in certificate-giving. After examining her he could not find sufficient evidence to justify her insanity, notwithstanding that he had received full information of her history and present state. Therefore, because the patient had screwed herself up to stand the operation and answered questions correctly, and because the surgeon was unable to write down facts of insanity observed by himself, though he confessed he believed her insane from the hearsay evidence and her unusual manner, she was not admitted, but was removed to her home among her friends, where the features of her case were clearly demonstrated. She began, without delay, to practically punish and censure her friends who had first put her under restraint; and, three days afterwards, was removed to the Stafford Asylum worse than ever, where she remains one of the worst class.

The following is a case much of the same sort:—W. F. H., aged 30, single, no occupation, stature under middle size, figure thin and spare, complexion muddy and sallow, countenance careworn, temperament nervo-lymphatic. First attack, duration over two years, during which time he was under restraint in Morningside Asylum. Cause, hereditary predisposition, his father having been insane. Patient had suicidal tendencies, and had been committed to the Edinburgh Asylum after several criminal attempts on his person. Among others, he attempted to cut off his testicles. While in the above Asylum he attempted to cut his throat, but in this was fortunately frustrated. There, he was very restless, nervous, and refused his food. He also entertained fears of a conspiracy to annoy and injure him, and fancied every one he met was a detective; and was depressed in his manner. For the convenience of his friends he was removed from Morningside, with this history and in this condition, to Coton Hill, Stafford, on the strength of two medical certificates given in Scotland. These not being held legal for the admission of a patient out of Scotland, fresh certificates had to be procured after he had been some days in the House. Two physicians in Stafford, one of them of high standing and repute, were called to certify. On their own confession they could not elicit, through questioning patient, the least symptoms of his insanity. Being present I could see their difficulty; and having seen the patient frequently in the galleries for some days previous to this examination, I was fully aware that his actions, not his words, were at fault. This being strongly set before them, the testifiers were satisfied of the man's insanity, but with the greatest of difficulty and diffidence framed their certificate.

The two following cases are only added to show what takes place in many cases of monomania, in relation to the subject before us, viz., that the medical examiner is put on the scent of the special delusion of his patient from the hearsay evidence, although so little value is put upon it at headquarters:—W. C. was examined, and answered everything correctly, no insanity being traceable. The friends then intimated that he indulged in immense and absurd ideas about mines. The delusion was then hunted up, and that proved the sole personal fact obtainable. His mental extravagances were afterwards verified in his correspondence.

D. M., a patient in the Aberdeen Asylum for the last twenty years, is the subject of monomania. In his conversation and conduct nothing irrational could be detected, even after long acquaintance. Nevertheless, he is the slave of a decided and only one delusion, viz., that he is a marked man by ladies, who, he fancies, make signs to him, and regulate all his actions. This idea he will rarely tell, knowing, as he says, that few will believe it. No expert could unaided find out this man's insanity; and were he free to-morrow, the consequence would be that he would dog the footsteps of the Queen as his chief star, and crouch after several ladies of distinction, who are also objects of attraction to him, as well as adoration.

A few remarks will now be made on the manner in which patients are discharged from asylums. It must first be observed that the committee of any person has the power of removing the patient from an asylum whenever he pleases, whether his condition is improved or otherwise, except there be very grave symptoms or tendencies in the case, when only the superintendent may legitimately refuse to discharge. But even under these circumstances the committee may effect the removal of the individual on the promise of putting him under restraint in another asylum; which, however, may not be so easily done, from what has been already pointed out. Many patients, as soon as they get into an asylum, begin to beg to get out again; and when they begin to get well their solicitations are backed up by their friends, and the usual consequence is that they are either let away a week or two on trial—a common enough occurrence in the private English asylums—or they are removed on probation for longer or shorter periods, which may be renewed almost indefinitely; or they are discharged improved, unimproved, or cured. Many are the individuals the asylum physician discharges, nay, even sends out, because he cannot keep them longer, when they appear well, who he well knows will go into society, according to their grade, only to pollute their neighbour and propagate a kind highly predisposed to neuroses of some kind developed from surrounding circumstances. There are no means of preventing this according to the present state of things. The Commissioners in Lunacy, whose duty it is to inquire into the patient's condition, and to insure his liberty if well, are eager to send patients out into the world again, and to restore them to liberty. In Scotland they often advise superintendents, willing or unwilling, not only to hasten the discharge of patients when cured, but recommend them to give trial to several in an improved condition, and strongly recommend those whose mental condition is not capable of further improvement to be sent into the country to stay with some friend; or, in the case of paupers, to board with people, often poor and needy, whom the parochial authorities are left to select. And so much is this the fashion, that in order to keep up the good name of their establishment, physicians are obliged to show up as many discharges as possible. That patients should obtain their liberty when well is natural enough; but it is more than doubtful whether it is in the interest of humanity, and a means of impeding the growth of the disease (which is the great object), that discharges should be effected so unreservedly in an improved and unimproved condition, or even cured, when reason has been but recently regained. By this transaction many are again let into the community at large in the same condition as many of those whom I have endeavoured to show should be in asylums, but who are not in them from the want of legislation; and, of course, being in a like condition as the latter, they are likely to incur the same consequences which have been already pointed out. A few cases may be given briefly in illustration. T. B., the father of three children, a gentleman in Worcestershire, a great drinker, a thorough maniac, and weak-minded, was put under restraint in an asylum about eight years ago. After some time he was removed home again, and has since lived there much in the same state as before his admission. His wife, a lady of superior sense and attainments, has more than once averted a tragic end of the case, as on three different occasions he attempted suicide. It is also to be noted that three more children have been born to him within the last seven years, who undoubtedly must inherit a strong taint of insanity, while his very presence among them cannot but prove prejudicial. Another case is that of M. L., æt. 18, single, prepossessing, who was admitted to the Aberdeen Asylum in 1870, suffering from religious mania. Under good moral discipline and careful treatment, she soon got well to all appearance, and had to be discharged. The skilful physician-superintendent regretted that it was not in his power to prevent her discharge, knowing that beyond restraint she could ill control herself, her moral sense being low. And true it was that almost the day after her discharge her virtue was overcome; nine months after, she was delivered of a child, and readmitted to the asylum a month later, the subject of puerperal mania. The offspring had not much chance of being mentally healthy, it is to be feared. Another case is that of a gentleman, the subject of cerebral disease, under restraint in an asylum, who, on the entreaties of his friends, was allowed home now and then, from a few days to a month at a time. The consequence of this was that his wife became enceinte, which, however deplorable, could not well have been prevented while his liberty was allowed. Another case worthy of notice is that of E. T., an iron-merchant in Wolverhampton. He had been subject to epilepsy from his youth, which developed dangerous maniacal symptoms. Under some provocation, he cut his throat, though not fatally, and was admitted then to Coton Hill, where he made some wild attacks on the attendants. Six weeks afterwards his father yielded to his urgent importunity, and he was removed in an unimproved condition. Immediately after his release, he set out in quest of his wife, who had eloped during his retirement, and ere a month had expired he arrived in America, where, finding his search unfruitful, he shot himself. Another case is that of an individual who was let out of one of the Perth asylums on probation, who very shortly afterwards drowned herself in the Tay. Numerous cases might be quoted of this character, but their detail would prove tedious, while the foregoing may be sufficient.

In reference to the treatment only a few words may be said. The best method of treating and checking insanity being had in view, the asylum has been prominently set forward. However much home treatment may be recommended, it is by no means an easy task, nor satisfactory in its results. From the little practical attention that is required to be given to the subject during the usual medical curriculum, the general practitioner cannot be said to be so well qualified for undertaking the management of the disease in detail as the asylum physician, with all his advantages of experience, arrangements, and appliances; and, to quote the words of, I think, Sir W. Stirling-Maxwell, although "the study of mental diseases, which are now so common, is the most important and interesting department of medicine, it is practically that which is least studied, the result being that, as a rule, the busy general practitioner in medicine, when he begins his career, is utterly ignorant of the puzzling phenomena of mental disorder, wholly unprepared to deal with emergencies to which insanity gives rise, both in country and town." Furthermore, the physician skilful in the subject experiences difficulties often insurmountable in treating satisfactorily cases at home. Patients cannot be forced into society, which can be so easily accomplished in the asylum. Forcible feeding is so disagreeable to the general gaze that it could rarely be continued long enough to be availing. The padded room has no existence without a license; the shower-bath and the wet sheet can be but rarely used in such a manner as to be of any use; in short, it is with diffidence, and only to please the friends, that the expert agrees to undertake the trial of anything like scientific treatment of such cases at home. The result of home treatment is often the transference of the case to an asylum; and the consequence of that is the common complaint among enthusiastic asylum physicians, that the admission of many of their patients has been delayed too long, and that thereby the chance of cure is much diminished, and certainly is rendered much more tardy. In addition, it may be stated that patients in asylums, according to the present system, cannot receive the attention that the gravity of their disease demands. The reason of this lies in the excess of duty which is laid on superintendents. They are supposed to direct their establishment in its civil, social, and medical details, and in addition to perform the part of practical farmer in many cases. Apart from other duties, how can one man examine from day to day, diagnose, prognose, and treat with any sort of precision, one hundred patients labouring under the most obscure and serious diseases, every one worthy of special study? But what is more often the case, three, nay even four and five, hundred are placed in charge of one man, with one or two medical assistants at most, who, however willing, have little power to treat as they think best. Consequently, the recent and acute cases absorb all the attention that can be given; while the rest are left to be affected by the general regimen.

In conclusion, a few suggestions may be given which will be readily guessed from the preceding remarks. For the benefit of the subjects of the affection in question, and the behoof of the general community, medical experts should be legally appointed in every town and country district, capable of distinguishing, and empowered to select and restrain, the unfortunate sufferers from mental disease in all its forms.

With the view of simplifying the present form of certificate, which to many experienced asylum physicians seems somewhat impracticable, the Lunacy Act might, I think, be beneficially modified in this particular. Without huddling a host or a few facts together, gleaned from a brief examination, which are of little real value and of less ulterior use, it would, I would venture to observe, be more to the point, more useful, and equally satisfactory, were the medical examiner, after hearing the history of the case, and after minutely examining the individual, to simply state "on soul and conscience, he is of opinion the individual is of unsound mind, imbecile, or lunatic."

Relating to discharges, it would prove highly salutary were more power given to superintendents of asylums to judge when the individual should be readmitted into society; which implies that it should be in their power to prevent removals unimproved or relieved, and that discharges should only be effected when a cure has been brought about, and even then, to go a step further, it would be well were the asylum physician left to judge, from his knowledge of the individual's character, whether or not it would be the better course to prolong the detention.

Temporary removals during treatment should not on any account be allowed.

Removals from one asylum to another should be effected on a certificate given by the superintendent who has had charge of the patient.

All medical men should have a good practical knowledge of insanity before graduating, fitting them to become experts. Before being appointed superintendents of asylums, candidates should be required to satisfy the Commissioners in Lunacy both of their theoretical and practical knowledge of medicine in general, and of cerebral pathology and therapeutics in particular.

Finally, as in the German asylums a physician is appointed to every fifty at most, it would not, I think, be impracticable, while it would be more humane, to make some such arrangement in our British asylums for the more thorough treatment of insanity.

ARTICLE V.—*Clinical Surgical Cases.* By J. CRAWFORD RENTON, M.B., etc., Glasgow; ex-Senior President of the Royal Medical Society, Edinburgh.

THE following cases of interest occurred under the care of Dr P. Heron Watson, in the Royal Infirmary, during the winter of 1872-73, when I acted as his resident surgeon, and by his kind permission I now record them.

I. *Compound Comminuted Fracture of the Right Parietal Bone.*

C. G., æt. 12, was admitted on the forenoon of 12th November. Patient's father stated that she had been knocked down in the street by a cart, and the horse had inflicted a severe blow on her head, but he did not think the wheel had gone over her.

On examination, the right side of her scalp was found to be torn up, as if done by the horse's shoe, and, on raising it, an angular comminuted fracture of the right parietal bone was exposed, being slightly depressed.

The patient was suffering from deep concussion. After the parts had been carefully cleansed, two strips of plaster were applied to keep the flap in position. In the afternoon, patient gradually became conscious, and continued to progress favourably until the 15th, when she complained of great increased sensibility over the whole body; pulse slow; urine passed involuntarily; eyelids œdematous. These symptoms were relieved by free incisions in the scalp and an enema. From this time her progress was uninterruptedly good; and eight weeks from the day of the accident the scalp wound was entirely healed, excepting one square point, at which a piece of bone remained bare and dead. This piece of bone Dr Watson removed, exposing the dura mater. Ten days sufficed to cover the space with granulations, and a sound cicatrix followed.

Note.—This case illustrates the importance of non-interference in many head cases; for had the comminuted piece of parietal bone been removed at the time of the accident, the probability is, that irritation, and possibly inflammation of the dura mater, etc., might have been set up, and the result might not have been so satisfactory.

II. *Amputation of the Leg for Epithelioma.*

M. A., æt. 56, was admitted on 28th December. He was a native of Shetland, and had suffered for eight years from an ulcer of the left leg. The ulcer affected the tissues of the ankle, and passed into the joint, in appearance being nodulated and vascular, and extending half way up the leg. Dr Watson accordingly amputated his leg below the knee by means of a long posterior flap. On examination, the new tissue was found to present the characteristics of epithelioma. In every respect the patient did well, and the stump healed in its entirety by first intention, the dressings employed being gutta-percha tissue dipped in carbolic acid and oil, and laid along the edges of the wound, and oakum above. He was just about to be dismissed, when, apparently without cause, he was seized with vomiting and purging, the character of the matters expelled being bloody, his pulse was small and rapid, and he died in the course of forty-eight hours.

Post-mortem.—The whole alimentary tract intensely congested.

Liver.—Slightly enlarged, and occupied at three points by multilocular hydatid cysts.

Spleen.—The actual substance diminished considerably, and its place occupied by a hydatid cyst as large as an ostrich's egg, and containing a vast number of smaller cysts, which were filled by still smaller ones. The fluid in which they existed was found to contain numerous hooklets when examined microscopically.

Heart, lungs, and brain did not present anything pecular.

III. *Excision of Knee-Joint.*

J. L., æt. 36, native of Orkney. Six months ago patient bruised his knee; this was followed by severe pain, which ended in an abscess, which burst; and as the discharge continued to annoy him, he came to the Edinburgh Infirmary and was admitted on 27th February 1873.

On examination, a probe was found to pass into the joint, and considerable thickening was confined to the end of the femur and head of the tibia, the tissues in the neighbourhood not being involved. Excision of the joint was resolved upon, and Dr Watson did so, removing the articular extremities of the femur and tibia, along with the patella.

The parts which were removed showed ulceration of the cartilages far advanced. The after-treatment consisted of accurate apposition of the divided ends of the femur and tibia, perfect rigidity being maintained by means of Dr Watson's own apparatus, consisting of a wire rod anteriorly and a tin splint posteriorly. This latter is an improvement on the Gooch's splint formerly employed; the splint is an inch and a half wide, the upper portion passing from the fold of the nates down to immediately above the popliteal space, and being connected by two wires to the lower portion, which extends along the calf, encircling the heel and terminating at the toes. The whole is kept steady by means of plaster-of-Paris bandages, and swung in the usual manner from a Salter's cradle. The advantages claimed for the posterior narrow tin splint are, ease of construction, and the less likelihood of discharge collecting posteriorly, and thus soaking the bandages, and rendering the apparatus uncomfortable.

Rapid consolidation took place in this case, the external wound healed without trouble, and in less than five months the patient was dismissed.

In connexion with disease of the knee-joint, very satisfactory results were obtained by the employment of an anterior tin splint. It consisted of a thigh and leg piece, which were connected by two firm wires, padded, and provided with straps for application to the limb. In early stages of knee-joint diseases this splint is very suitable; and even where, for example, gelatinous disease has advanced to the stage of partial dislocation, it may be bent to suit the displacement, and gradually straightened until a suitable position for anchylosis is obtained.

IV. *Excision of the Hip-Joint.*

J. G., æt. 13, from Dundee, was admitted on 1st March 1873. Patient complains of a swelling at his hip, which appeared after he had suffered from considerable pain, and difficulty in walking.

On examination it was found that a large abscess existed on the outer aspect of the joint, and a second had appeared on the inner side of the thigh. Dr Watson advised removal of the head of the femur, which was agreed to, and on 8th March the operation was performed by means of the usual single incision, and the head of the femur was removed, being found in a diseased condition. The acetabulum was healthy. American extension was applied to the limb, and the site of operation regularly dressed. The patient was considerably weakened by previous suffering, and was a good deal troubled by diarrhœa, but as his strength came up his symptoms improved, and he was able in three months to have a Sayre's splint applied, and returned home presenting a marked contrast to what he was when he came in.

V. *Amputation for Osteomyelitis of Tibia.*

M. C., æt. 42, was admitted on 14th November 1872. Twenty years ago this patient sustained a compound fracture of the left tibia, from which he recovered, but he always felt he had a weak limb, and five years ago osteomyelitis attacked the tibia. Under palliative treatment it was so far relieved, but whenever he resumed his work the pain returned, and finally he consented to have his limb amputated. This was done on 21st November by Carden's method, after which his progress was favourable though tardy. An attack of erysipelas seemed to stimulate to a cure, and he was soon able to be dismissed.

On making a vertical section of the tibia it presented beautiful characteristics of chronic periostitis and ostitis, the whole medullary cavity being occupied by inflammatory deposit.

VI. *Cases of Club-Foot, and Treatment.*

Eight cases of club-foot were operated on: five talipes equinovarus in young children, one in a child of six, two simple talipes equinus. In the double cases, division of the tibial tendons was first effected, and a tin splint bandaged to the outer aspect of the limb. The splint is Dr Watson's, and is constructed thus:—The leg piece extends from the external tuberosity of the tibia to the external malleolus, and the foot piece from that point to the great toe. These two are connected together by a piece of wire passing along the back of the two parts composing the splint. The leg and foot piece being only connected by wire, at whatever angle we wish the foot piece, we can easily bend it. By bandaging the foot to this splint we can adjust it carefully and from time to time, and a most satisfactory result is obtained. The one displacement having been rectified, the heel is brought down by division of the tendo Achillis, and the same tin splint placed on the front of the limb, the leg and foot being bandaged to it.

In the event of any one wishing to operate on all the resisting points at once, the same splint is equally suitable, if, in ordering it from the instrument-maker, he is directed to make the foot piece slightly curved on the outer side; and bending it a little more laterally, we secure outward and upward fixity of the foot and ankle.

The great advantage of these tin splints is simplicity, and they may be made in any country village, and procured by the poorest patient.

VII. *Termination of a Case of Supra-pubic Lithotomy.*

N. W., æt. 60, male, admitted on 1st March, complaining of severe pain in his back, and that he passed very dark-coloured urine.

History.—Two years ago Dr Watson had removed from this patient, by the supra-pubic operation, a very large calculus, about the size of a double-yolked egg, and from this he made a good recovery. Ever since, his health has continued good, until, four months ago, he began to suffer pain in his back from time to time. Ten days ago he had a rigor, pain in his back, and passed a large quantity of dark-coloured urine. On examination he was found to be suffering from acute congestion of the kidneys, which, in spite of all remedies, rapidly terminated fatally.

Post-mortem.—Kidneys deeply congested, the pelvis of the left being occupied and dilated by a very large calculus, having processes of the same calculous matter passing from it into the calices of the kidney. Right ureter was slightly dilated. Bladder normal, except that the columnæ were slightly hypertrophied. Other organs normal.

VIII. *Ruptured Urethra operated on successfully.*

D. M., æt. 20, male, was admitted on 30th September 1872.

History.—While engaged working at the Caithness Railway, he met with an accident by which a weight of earth fell on his back, fracturing a piece of the ischium, which was driven through the urethra, causing extravasation of urine, which was promptly treated. Three days after the accident, no instrument could be passed along the urethra, and the urine was all drawn off by the fistulous opening in the perinæum. It became evident that complete division of the urethra had taken place, and in order to remedy this an operation was necessary, for which he was sent to

Edinburgh. At the time of the accident it was feared that a fracture had passed upwards into the hip-joint, which was ultimately proved to be the case. Dr Watson accordingly performed the following operation. He passed a grooved stricture staff along the urethra, laying open the occlusion, and carrying the staff onwards until it reached the bladder. This was withdrawn, and a gum-elastic catheter introduced and retained for six weeks, during which time the parts consolidated, and the patient was enabled to pass his urine by the natural channel. Subsequently inflammation took place in the hip-joint, and carried the boy off.

The post-mortem proved the value of the operation in establishing a connecting medium in ruptured urethra.

In another case of a similar nature operated on at the same time on a boy of twelve, the result was perfect, and the boy continues to make his water normally.

ARTICLE VI.—*Scarlatina Anasarca and its Treatment.* By J. P. BRAMWELL, M.D., L.R.C.S., Visiting Physician to the County and City of Perth Infirmary.

THE following observations are based chiefly on the last two epidemics of scarlatina which occurred in Perth, the one in 1868, and the other in 1874. During these epidemics I have treated thirty-two cases of scarlatinal dropsy. It is a trite fact, that a certain number of scarlatina patients are attacked in the stage of convalescence with dropsical symptoms. It will be found, however, as observed by Hebra, that the proportion varies in different epidemics. I found it to do so from 16 to 25 per cent. These variations apparently depend, in some measure at least, upon the character of the season; a very cold one seeming to favour the occurrence of the sequela in question. We have observed also, that when scarlatinal dropsy was of frequent occurrence, other forms of morbus Brightii were unusually common, notably those of an acute character. Some of these, doubtless, were cases of latent scarlatinal dropsy, in which the original disease had escaped observation; others, examples of idiopathic desquamative nephritis. We are, however, far from believing that all cases of scarlatinal dropsy depend upon exposure, there being no proof of this whatever, but quite the contrary; most of our patients subsequently so attacked having been carefully guarded indoors till the dropsy came; we must therefore look for its causation in some other direction.

If the previous history of such dropsical patients be inquired into, it will be found, that with few exceptions the original disease (scarlatina) occurred in a mild form, the eruption not being copious. Such being the case, it is highly probable that the poison was not eliminated by the skin, its normal channel; and, in finding another way of exit by the kidneys, irritates these organs, impairs their power of secretion, and leads to the sequela in question.

Scarlatinal dropsy generally appears between the tenth and twentieth day after defloresence of the erythema. In some it is ushered in by pyrexial symptoms of more or less severity. As a rule, however, it creeps on in an insidious manner, the first thing that has excited alarm being the dropsical condition of the patient. The urine is lessened in quantity, ranging from three to twenty ounces in the twenty-four hours, and is of a smoky colour, with a disturbed muddy mucous cloud. It deposits sediments which, on microscopic examination, prove to be blood-corpuscles, hollow tube-casts, disintegrated epithelium, and urates, and, in some rare cases, the principal deposit is ammoniaco-magnesian phosphates. In six cases the urine was found to be acid, and contained the former deposits: in one case only were the ammoniaco-magnesian phosphate found. The fact that in some of these six cases uræmia symptoms were shown, does not seem to favour Frerich's theory of uræmia poisoning by the transformation of urea into ammonia. If such were the case we would naturally expect an alkaline condition of urine more frequently associated with uræmia, which in point of fact is quite an exceptional occurrence in the malady.

It is almost superfluous to add, that the urine is always more or less albuminous. In some cases, however, both at their commencement and decline, boiling such acid urine will give no deposit or cloud, while the cold nitric acid test will give a well-marked deposit of albumen. This fact should be duly considered before pronouncing dropsical patients entirely free from danger.

The specific gravity is seldom below, generally above, the normal (1025-1030), thus entirely differing from the albuminous urine of chronic renal disease.

If this dropsical condition remains unchanged, a formidable train of symptoms sooner or later begin to show themselves, and that not always, as Sir Robert Christison has long ago pointed out, in proportion to the quantity of urea excreted. These symptoms are cough, dyspnœa, vomiting (sometimes of grumous blood), dry retching, headache, loss of sight and convulsions; all which symptoms owe their origin to one common cause—the poisoned condition of the blood by the retained urea. The bowels are generally much constipated, and the pulse slow and unrhythmical. If prompt means are not now employed, violent eclampsia generally ensues.

Scarlatinal dropsy is often a fatal malady. From the registrar's returns for Perth, I learn that of every 100 fatal cases of scarlatina, about twenty succumbed to this complication and its consequences. Of the thirty-two cases treated by me, one third never showed any local complications or symptoms of uræmia poisoning. The greater proportion, however, showed both, and some six or seven had convulsive paroxysms.

Treatment.—When the case was one of moderate severity, and uræmic symptoms not a conspicuous feature, sharp purgation with drastics, such as the comp. jalap or comp. scammony powders, answered very well. It was found, however, that a very large dose was required to produce the desired effect, ʒss. or even ℈ii. of comp. jalap being often required for a child five or six years old. This purgation was alternated by vapour-baths, and at a later period, when febrile action was diminished, inf. of digitalis with acet. of potash was administered with good results. It will be found, however, that dropsical symptoms in the majority of such cases will persist in spite of all these means, and go on from bad to worse till alarming pulmonary complications show themselves, or convulsions supervene. What now is to be our line of procedure? We venture to affirm, that at this juncture abstraction of blood, either general or local—certainly general when there are convulsions—will act in a most beneficial manner, and convert in a short time an apparently hopeless case into a remediable one. In order to accomplish this, however, we must not hesitate to take blood freely, as ten ounces from the arm of a boy ten years of age, or four ounces by cupping over the loins in a child four or five years of age. Neither must we be deterred from this by the supposed anæmic condition which some writers on renal disorders have ascribed to such patients. The truth is, they are not anæmic at all, but are suffering from an acute disorder associated with a very different condition of blood from that existing in chronic renal disorders, and the rapidity with which they recover after sharp antiphlogistic treatment sufficiently shows this. Depletion acts like a charm in convulsions from acute uræmia, and we have seen a free diuresis set up in forty-eight hours after its employment, unaided by any other remedies.

The following is Dr Graves's opinion of this practice: "By opening a vein in the arm and abstracting a quantity of blood proportionate to the age and strength of patient, you remove the inflammatory state of the constitution, and arrest at once the anasarca and the pectoral symptoms." Generally speaking, cases of anasarca after scarlatina stand antiphlogistic treatment well.

I am interested also to observe, that Trousseau, whose leanings in general are in an opposite direction from bloodletting, makes a special exception in favour of scarlatinal dropsy, thus showing his high powers of discrimination and accuracy as to facts.

It will be found that it is in vain to treat the various complications that occur in scarlatinal dropsy—such as pneumonia, cerebral congestion, hæmatemesis, etc.—as if they were idiopathic affections, seeing each and all of them depend upon a poisoned condition of blood from impaired kidney function. Let this latter condition only be removed by depletion, and the other disorders which depend upon it soon disappear without any special treatment whatever. There are pneumonias *and* pneumonias, there are cerebral derangements *and* cerebral derangements, and we must differentiate the treatment accordingly.

Medicine has fashions as well as other things, and bloodletting, at one time so frequently used and often abused, is now banished altogether. Such great swings of the pendulum, however, generally override the mark; it would be wiser to be a little more discriminating. One is forcibly reminded by all this, of a just observation by the late Sir Benjamin Brodie, to the effect that "the progress of medicine is not quite so great as it seems to be, because, while introducing new remedies, we are losing sight of and discarding others old and tried."

Let me further observe, that the adaptability of this remedy is not confined to some exceptionally sthenic epidemics, but has suited well in my hands in the same disorder occurring and recurring at considerable intervals of time. By a fair induction, bloodletting will be found an admirable remedy in all forms of acute uræmia, as uræmic puerperal eclampsia, acute desquamative nephritis, etc.

We have treated thirty-two cases of acute scarlatinal dropsy more or less after this fashion, with only two deaths. One of the fatal cases was seen too late, when no depletion could be thought of. This patient died of acute pulmonary œdema. From the severity of not a few of these cases, and the inadequacy of other means in a considerable proportion of them, there is no doubt in my mind but that several more of them would have terminated fatally had bloodletting not been boldly employed. Let me venture, then, to press this valuable old remedy in this disorder upon the notice of my professional brethren who may not have tried it, especially on the rising generation of physicians, who have been educated, perhaps, too exclusively in an expectant or building-up treatment of all inflammations indiscriminately.

The following cases will illustrate the treatment and the severity of the symptoms in some of the patients:—

Case I. A boy, aged eight years, about the fourteenth day of recovery from a mild attack of scarlatina, was seized with dropsical symptoms. He was purged by comp. jalap powder, and ordered calomel ⅛ gr., tinct. digit. ♏iii., every six hours. His breathing soon became seriously impeded, and it was found that he was suffering from œdema of the glottis. This was subdued by free swabbing with a strong solution of nitrate of silver and insufflation of alum powder. Urine albuminous, but increasing in quantity. Symptoms of uræmia now supervened, namely, slow pulse, pain in the head, and dry retching. Next day came violent convulsions, at first at intervals, later all but constant. His pulse was pausing every third or fourth beat, his respirations were very hurried and laboured, and, at intervals, a gush of grumous matter like coffee-grounds, composed of altered blood, was ejected through his nostrils. About 8 oz. of blood were taken from his arm, and then chloroform was administered as often as a convulsion fit threatened. On turning him on his side, he became quiet and slept for several hours. A convulsion fit again threatening, chloroform was re-administered, after which he slept continuously till next morning, when he awoke to consciousness. No more convulsions or uræmic symptoms recurred. He soon passed urine freely, the secretion being aided by bitartrate of potash and digitalis, and made a good recovery.

I may mention, that this patient belonged to an industrial school in the neighbourhood, and was in one of our Infirmary wards with six other boys from the same institution. By a strange coincidence, two of the other boys became dropsical and convulsed, one being amaurotic, and all but blind for four days, from retinal poisoning. All were bled at the arm, and all recovered.

Case II. A boy, aged eleven years, had a mild attack of scarlatina. Ten days after, the symptoms began to abate; he became slowly dropsical without any marked febrile reaction; his urine was albuminous, and contained tube-casts and renal epithelium in abundance, quantity 3 to 4 oz. in twenty-four hours. He was purged freely, had warm baths, counter-irritation applied to the loins, and diuretics, all to no purpose. His anasarca increased, and the quantity of his urine decreased slightly. Symptoms of uræmia beginning to appear, I bled him to 10 oz. Immediate relief followed, and in forty-eight hours he was passing 20–30 oz. of urine in the twenty-four hours. Although this urine continued albuminous, it steadily increased in quantity. He was kept strictly to bed, and had a warm bath every third night for two weeks, at the end of which time his urine was normal in quantity and quality.

Case III. A boy, aged six years, became highly anasarcous after an attack of scarlatina; his urine was reduced to 2–3 oz. daily. Ordered liq. ammon. acet., vin. antimon., and warm baths after his bowels had been opened by comp. scammon. powder. No improvement followed. Infusion of digitalis and acetate of potash were now substituted, but neither skin nor kidneys could be got to act. Next day dropsy was still increasing, face very puffy, scrotum and penis much swollen, drowsy, and complained of his head; symptoms of pulmonary congestion also appeared. Four leeches were now applied to the loins, and a very copious flow of blood ensued; this was aided by hot poultices. The bleeding was difficult to control, and alarmed his parents, but no bad consequences followed. On the contrary, he began next day to pass urine in considerable quantity. A steady diuresis now set in, and the boy made a good recovery.

Case IV. A little boy, five years of age, was admitted into one of our Infirmary wards with all the symptoms of scarlatinal dropsy. Three members of his family had scarlatina in a latent form, and all became dropsical. The little fellow referred to was quite waterlogged, and of prodigious weight, considering his age and height. He was purged freely, and had calomel with digitalis, and mustard poultices applied to his loins, but all to no purpose. He was then cupped to 4 oz. of blood over the loins. In twenty-four hours a free diuresis set in, and soon he began to pass urine in enormous quantities, and made a steady and complete recovery.

I could adduce numerous other cases of this kind, where the beneficial effects of depletion were sufficiently apparent. To do so, however, would extend my paper beyond due limits. I shall therefore conclude with the notes of another case which presented certain exceptionally interesting particulars.

CASE V. A schoolmaster, into whose school scarlatina had entered, feeling out of sorts, called in medical aid. I found his face puffy, pulse somewhat irregular and slow, urine reduced in quantity, highly albuminous, and having a copious sediment of renal epithelium. He was ordered to keep his bed and use comp. jalap powders every third day, with vapour baths between. These remedies, however, did not relieve him, neither did digitalis and potash. In addition to his other symptoms, congestion of both lungs now set in; his sight became affected, mind somewhat confused. At three o'clock in the morning he had a convulsion. On arriving I found him coming out of it, but still confused. I bled him from the arm to 10 oz. Next day, I found him quite collected. The extracted blood was buffy and firm. Next day, secretion of urine was much increased, head symptoms gone, and chest symptoms much relieved.

Three days after the bleeding, he had a severe rigor, followed by delirium and phlegmonous inflammation of his arm, which ran on to the formation of pus, and required several free incisions for its relief. The constitutional disturbance was very high, and his life apparently in danger. His urine was exceedingly bloody for several days during this inflammatory attack. He was put on liq. ergotæ with beneficial results. In two and a half months from the date of his first ailing, he was able to resume his duties, the renal symptoms having completely disappeared.

Note.—I am not certain whether this case was one of dropsy following latent scarlatina or acute desquamative nephritis; but in either case it shows that bloodletting is the best remedy when acute uræmic symptoms supervene.

ARTICLE VII.—*Practical Notes on Oxaluria.* By ROBERT SAUNDBY, M.B., Senior President Royal Medical Society, late Resident Physician Royal Infirmary.

ALTHOUGH during the last forty years much has been written upon oxaluria, its significance still remains *one of the questiones vexatæ* of medicine, chiefly, perhaps, because its importance has been greatly over-estimated. It has been described as a specific disease, and is pretty generally considered to afford special therapeutic indications; while others believe it to be a condition capable of being produced by many different circumstances, each requiring to be considered in the method of treatment.

According to the researches of Böcker, Walshe, and Racle, the presence of a trace of oxalic acid in the urine occurs pretty frequently in perfectly healthy people, but the spontaneous deposit of crystals of oxalate of lime, with or without lithates of soda and potash, never occurs, without being associated with other symptoms requiring the attention of the physician, except in those cases in which oxalic acid has been taken in food or medicine; for among its causes may be placed disease of the heart, lungs, liver, or stomach, anæmia, and errors of diet. In this last particular it is usual for writers to throw the whole blame upon special articles, or certain chemical constituents of food, some authorities finding the *fons et origo mali* in saccharo-farinaceous, others in nitrogenous food; but while the balance of physiological and chemical evidence weighs in favour of attributing to nitrogenous food no small influence in the production of oxaluria, yet in many cases quantity and not quality is of the first practical importance; of this, the following case is illustrative:—

CASE I.—D. ——, ætat. 34, came under observation on the 31st of January 1875. His case was one of rather rapid dementia; he had been under medical treatment for eighteen months; three months ago his physicians discovered oxalates in his urine, and since he has been taking regularly the strong nitro-muriatic acid of the Dublin Pharmacopœia. His friends were very anxious that the oxaluria should be cured, as they believed that the mental phenomena, at least in part, depended upon it.

Present Condition.—There were no symptoms or physical signs of organic disease in the thorax; his pulse was small and weak, but regular. He had no appetite, and refused to eat, but up to the previous day he ate heartily; his tongue was covered with a thick brown paste; his bowels were constipated; he had been taking podophyllin pills regularly, and lately croton-oil in addition; there was no increase in the liver dulness. His urine was much diminished in quantity, sp. gr. 1030; it became turbid on cooling, and deposited a thick sediment of lithates and oxalates. He was ordered to eat no meat, but to take arrowroot, sago or rice puddings, milk, and Vichy water, and, as he did not sleep well, to have a drachm of bromide of potassium at bedtime.

Progress of Case.—He would not drink the Vichy water, so it was given up; his bowels were moved on the third day by a laxative of sulphur and guaiacum; on the fifth day the urine was somewhat better, the number of oxalates seemed less, his tongue was cleaner, and he took his food himself; as the quantity of urine, however, continued to be small, he was ordered—

℞ Tinct. Ferri perchlor. ʒij.
Sp. Ætheris nitrosi ℥iss.
Aquam ad ℥vj. M.
Sig. A tablespoonful three times a day after food.

On the seventh day the urine is described as clear, with no deposit of lithates or oxalates; the mixture was soon after discontinued. The urine was examined almost daily, and kept free from oxalates till the twenty-first day, when there was a copious deposit of lithates and oxalates. On inquiry being made, it was found that his appetite had improved, and that he had become greedy, eating all he could get. The quantity of his diet was reduced, still allowing him to have meat, etc., which he had resumed after the eighth day, and in three days his urine became quite normal. A relapse traceable to the same cause occurred a month later, and was treated with perfect success in the same manner. When examining for oxalates in this and in other cases, the urine has always been carefully collected during digestion (after dinner), and examined after it has stood several hours, and the absence of oxalates never admitted until repeated searches at different times have confirmed each other. In this case, as might be supposed, no mental improvement has followed the cessation of the oxaluria, but he is somewhat improved in general health; his bowels have kept in regular order, only requiring an occasional laxative. It is worth noticing that starchy food had no effect in retarding this recovery; till the eighth day his diet was exclusively starchy, and since that time the bulk of his diet has been farinaceous.

The late Dr Begbie first described those cases in which mental symptoms, almost if not quite amounting to insanity, are accompanied by oxaluria, and there seems to be a pretty general belief that in some way the oxaluria is the cause of the mental disturbance. Harley (*The Urine and its Derangements*, 1872), goes so far as to say that it is now generally admitted that these symptoms are due to chronic poisoning from the accumulation of oxalic acid in the blood; and though this particular theory may not be generally accepted, some genetic connexion between oxaluria and mental depression is widely believed in, perhaps more from the authority of the original propounders of this hypothesis, than from the weight of any evidence, clinical or physiological, in its support. For a careful examination of such cases will always show other elements, which cannot be ignored in considering the etiology of the mental affection, while there is no mutual dependence in the phenomena of oxaluria and mental depression. It is possible that in certain inherited or acquired brain diseases there may be a special impairment of that nerve influence which regulates the functions of those organs concerned in the processes of oxidizing nitrogenous material. This view has been put forward by Beneke, and is therefore worth consideration; but at present there seems no necessity for placing oxaluria among the neuroses of the liver. The following cases are examples of this condition:—

Case II.—A. ——, ætat. 32, a clergyman, married, came under observation on the 20th of June 1874. There is a clear family history of insanity in the case. He has been suffering from depression for about six months; he was married a year ago, and attributes his illness to over-work and worry; he has been dyspeptic all his life, and subject to lithuria.

Present Condition. — His general physical development was slight; there were no physical signs of organic disease; his appetite was fair; he disliked meat; his bowels were irritable; his urine deposited quantities of lithates and oxalates. He talked quite sensibly, but said he felt confused and unable to think for any length of time; the world seemed all changed to him, and he was so extremely miserable that if it were not for the sin, he would commit suicide; he took no interest in passing events; his memory was unimpaired, and he had confidence in his ultimate recovery. He was ordered—

℞ Acidi nitrohydrochlor. dil. ʒiij.
Succ. Taraxaci ad ℥vj. M.
Sig. A tablespoonful three times a day, after food.

Progress of Case. — After two months there was little or no improvement in his mental condition; the state of the urine was as described above, depositing lithates and oxalates; soon after, Vichy water was ordered him, and the acid stopped. Unfortunately, the urine was not being examined daily; but, by the 1st of September, the oxalates had disappeared; it is also noted that there was some slight mental improvement. For the remainder of his stay, he continued the Vichy water daily, and had no return of the lithuria or oxaluria. His mental condition gradually improved, and he left Edinburgh in November 1874, in good health and spirits.

No one can fail to remark the relation as to time between the mental improvement and the cessation of the oxaluria; unfortunately, the observations on this head were not very exact, but this coincidence proves no more than that there was a general improvement, in which the brain shared as well as the other organs. When we consider the probable result of over-work, worry, and marriage, upon a man of nervous temperment, of feeble physical development, with a predisposition to mental derangement, and habitually dyspeptic, ought we to be surprised to find in this patient symptoms of brain disease, associated with dyspepsia? It is not quite clear whether the Vichy water may be considered as having had anything to do with the disappearance of the oxalates; certainly nitro-muriatic acid had been tried for long ineffectually; but, be this as it may, his recovery was mainly due to mental and physical repose, a regular life, and suitable diet.

The next case is somewhat similar, but shows more clearly the independence of mental depression on the continuance of oxaluria.

CASE III.—J., ætat. 61, a medical practitioner, unmarried, came under observation on the 26th of December 1874. His father was insane. He attributes his present illness to over-work, and to having got wet one day last April; he has been always dyspeptic, with frequent lithuria.

Present Condition.—His appearance and expression of face were indicative of extreme dejection; his nose and cheeks were blue with dilated veins; his skin and conjunctivæ were slightly jaundiced; his pulse was small and weak; there were no physical signs of organic disease in the thorax; there was tenderness over the region of the liver, increased on pressure, but no physical changes in that organ could be detected. His appetite was poor; his bowels irritable; his urine deposited lithates and oxalates in abundance.

Mental Phenomena.—He could talk sensibly, but complained of being very miserable; said that there were no means of doing him any good; that his case was hopeless, and there was nothing for him to hope for in this world or the next.

He was ordered—

℞ Tinct. Iodi ʒj.
Aquam ad ℥vj. M.
Sig. A tablespoonful three times a day, after food.

Progress of the Case.—The icteric tinge gradually disappeared from the skin and conjunctivæ; the urine remained the same, but he would not drink Vichy water; the mental depression increased till it amounted to absolute stupor. On the 7th of February he was ordered—

℞ Acidi nitrohydrochlor. dil. (P. Dub.) ʒiij.
Succi Taraxaci ℥vss. M.
Sig. A tablespoonful three times a day, after food.

The iodine was discontinued. He went on with the acid all February, but without any effect on the oxaluria, so on the 1st of March he was ordered to stop it and take—

℞ Sodæ bicarb. ℥ss.
Infusi Quassiæ Oj. Solve.
Sig. A wineglassful three times a day, before meals.

On the 6th of March, the urine is noted as quite clear and free from both oxalates and lithates. He continued to take the same medicine till the 26th of March, when it was stopped, and up to this time (29th May) there has been no return of the oxaluria. There is a slight improvement in his general health; his mental condition is not so bad as it was in February, but is worse than it was on admission.

This case bears a great similarity in its predisposing and exciting causes to the previous one, over-work and ill-health specially affecting the brain and digestive organs, which were predisposed to disease. The following is a summary of the points illustrated by these cases:—

1. In the causation and treatment of oxaluria by diet, the quantity is more important than the chemical constitution of the food.

2. The mental disturbance which sometimes accompanies oxaluria does not depend upon that condition, but both are due to

general causes in the constitution and surroundings of the patient.

3. Excesssive oxaluria marks a further stage in that form of dyspepsia usually characterized by lithuria.

4. There is no specific treatment for oxaluria.

ARTICLE VIII.—*Glimpses at the Health Resorts of the Bay of Naples in Ancient and Modern Times.* By JOHN MACPHERSON, M.D., Inspector-General of Hospitals (retired).

(*Concluded from vol.* xx. *page* 1110.)

THE mineral waters of Naples itself do not require any extended notice. The two old and the two new sulphur and iron springs of St Lucia and of Pizzofalcone are favourite drinks, but never could have been the waters and baths of Naples, alluded to by Strabo. The old sulphur is greatly esteemed in all cutaneous affections, and is drunk, as well as used externally, and the chalybeate of Pizzofalcone is a grateful drink.

Passing along the coast to the south, stufe are heard of at Torre del Greco, which has also waters, said to be of some strength. Further on the baths of Torre del Annonçiata are unimportant, and I did not visit them. There is a spring here rich in chloride of sodium. Passing Pompeii, we go on to Castellamare, beautifully situated by the sea, and backed by mountains. The Stabiæ of the ancients was famous for its milk and pastures; and its hills and the slopes of Vesuvius were recommended to phthisical patients. Its waters are mentioned by Columella and by Pliny. At the present day, its waters and bathing establishments are of considerable importance, and well frequented. The Neapolitans resort to it for change of air and for sea-bathing, as well as for its mineral waters. These waters are so well known that a long account of them is not required. They are cold, in contradistinction to most waters of the district, and mostly of common salt of various strengths, containing some carbonate of soda and other salts, and two or three of them having iron and hydrosulphuric acid. In walking along to the west, one comes on three weaker springs—two chalybeates, the Acqua Ferrata and Acqua Rossa—and in the middle of the town is a reservoir, used chiefly for drinking, and of interest, as being probably the Aqua Dimidia, mentioned by Pliny as good in calculous complaints.

At the west end of the town there is a drinking and bathing establishment of considerable size. In it are four springs—the Media, the weakest; the Ferrata del Pozzillo, and Ferrata Nuova, both practically the same, and containing a little more salt as well as iron than the Media, and both having a large supply of carbonic acid; and, the strongest spring of all, the Sulfureo Ferrata, containing more salt and a good deal of sulphuretted hydrogen. These four streams are allowed to run into one, used for general purposes, called the Confluenta. Of these four, owing to the bad arrangements, only the Media and Pozzillo can be drunk. But the Acqua Muraglione, in the neighbourhood, which has nearly the same constituents as the Sulfureo Ferrata, only less sulphuretted hydrogen and iron, is drunk in its place, and is in great request. Though there are bath arrangements which supply the mineral waters both cold and heated, the waters, which are very little above the temperature of ordinary water, are chiefly used for drinking—the milder for ordinary forms of dyspepsia; the stronger for action on the liver and for reduction of obesity; while the sulphur is employed in skin diseases. One may say loosely that these waters have analogies with Seltzer, Kissingen, and with Harrogate.

Stabiæ, however, was not so much esteemed by the ancients for its mineral waters, as for its general advantages of climate. It was renowned for its fine meadows, the moderate elevation of its slopes, the vicinity of the sea, protection from violent, especially from east, winds, and the absence of marshes. The ancients indeed understood the essentials of a health resort as well as we do, and were just as interested in the salubrity of places.

But the great recommendation of Stabiæ was that it had good milk; and Galen sent consumptive patients there to drink it, ordering it generally to be mixed with a little common salt or with honey. Owing to the excellence of its milk, a hill near Stabiæ acquired the name of Mons Lactis, or milk mountain, Mons Lactarius. It is probable that this name is now represented by the village of Letera, on the slopes of the ancient Mons Gaurus. Cassiodorus wrote that the Mons Lactis was a divinely-given cure for phthisis; for there the salubrity of the air, co-operating with the richness of the soil, produces grass and herbs of such sweetness, that the cows fed on it yield milk of such admirable quality that the mere drinking of it effects cures, when all physicians' remedies have failed. It restores to their primitive condition constitutions worn out by suffering, it renews exhausted strength, and soothes the system of the sick, as sleep relieves the wearied labourer. Symmachus, too, tells us of doctors sending their patients to the milk of Stabiæ. Indeed, milk was a favourite cure with all. Pliny the Younger tells us that, when his freedman, whom he had sent a voyage to Egypt, had returned better, but had begun again to have hæmoptysis, he intended to send him to the villa of one of his friends, where he heard that the milk was excellent. Arcadia was a favourite place, and safer, as regards brigandage, in these than in the present days, to send patients of this class to. The Arcadians were said not to use any medicines except milk in the spring season, which was at that time impregnated with the juices of various herbs of most potent virtues. In like manner, at this day does each milk cure station boast of its milk being got from cattle pastured where there are aromatic herbs. There can be little doubt that excursions by sea formed part of the Stabiæ cure, for both short and long voyages were strongly recommended by Celsus, Cælius Aurelianus, and others; Cælius well observing, that sea air causes a change or renovation of the system, and others doubting whether it was not the long sea voyage that did good to the patients, who used to be sent to Egypt for the recovery of their health.

Stabiæ is especially remembered as the place where Pliny, who was admiral of the fleet, and had crossed over from Misenum to observe the eruption which overwhelmed Pompeii, and to render aid to the sufferers, was suffocated by the showers of impalpable dust.

Here limestone rock is reached, and we quit the volcanic formations, on which we have been wandering. Sorrento, a favourite station in old as well as in modern times, and Capri, are both on limestone. But nothing need be said of places so familiar to every Italian traveller. Can anything new be said of them?

Ischia, I believe, differs from every other place in the world, in having no fewer than five names, the etymology of not one of which has been satisfactorily explained. Its oldest name, Arime, has been derived from a supposed name of its inhabitants Arimi, a word which is also said to mean, in Tuscan, monkeys. Poets, for the convenience of their verse, added the prefix Ein, and it became Einarime. Next we hear it called Pithecusa, variously explained as an island of monkeys, or of pottery. In Cicero's time the name of Ænaria was the common one, some say after Æneas, who is not known to have put foot in the island; some say after *oinos*, wine. The modern name of Ischia has been imagined to mean strength or sciatica! or it is supposed to be explained by the fact, that the island was called Iscla in old ecclesiastical writings.

Ischia has been well known in story and song, as being the weight by which Jupiter has kept down the rival giant Typhæus, no doubt a mythological reference to its igneous structure, and to the constant volcanic changes to which it was subject.

Indeed, seeing how picturesque the island is, and how near to Cumæ, of kindred Greek colonization, it is wonderful how little the island was resorted to for villas by the richer Romans, who crowded to the Bay of Naples. Almost the single notice of any one's visiting it is Cicero's remark, that Antony, after bathing at Baiæ for a couple of days, had crossed to Ænaria. Nor, although it was beautiful and more extensive and every way important than Capri, did it take the fancy of Augustus as the latter island did, owing to a fortunate augury, upon which he made over Ischia to the municipality of Naples in exchange for Capri.

Of the mineral waters of Ischia in those days, we only hear from Pliny and from Strabo, that they were good for stone. There are singularly few traces of the early occupation of the island—a few Greek vases near Lecco and some inscriptions to the nymph of the Nitroli waters, are almost the only memorials of it. There are no remains of villas of any importance, or of temples. None of the large calidaria or sudatoria—sometimes passing under the name of temples, of which there are so many on the shores of the mainland—have been discovered in the island.

But if early accounts are deficient, and Alcadinus is silent about them, we have ample histories of Ischia and its waters from the sixteenth century downwards. Lombard, Elysius, Solenander, Baccius, all wrote. Jasolin, in 1588, published an elaborate account of all the springs; and in 1726, the Jesuit De Quintius consecrated to them a long Latin poem in hexameters, consisting of six lengthy books, very tedious to read, yet containing a quantity of curious information. Jasolin described 35 springs, 19 stufe, and 5 places where arenation was practised. 150 years afterwards Capaccio counted in all, 24 springs, 7 stufes, and 3 arenations, while the total number of mineral waters was 35 hot and 11 cold.

If in the course of time many of these have fallen into neglect, or have been entirely forgotten, yet in the present century M. Rivaz and Cox have called attention to the more important of them, and they have been gradually rising in estimation of late years, and good establishments have been attached to the chief ones. Ischia in a general sense possesses the same sort of waters as those we have been describing along the coast, only they are stronger and hotter, and the supply of most far more abundant.

Baths of the waters are very pleasant, and probably to none do Peter of Apona's lines apply better than to those of Ischia:—

"No veins are cut, no wounds by fresh wounds healed,
No potions nauseous faces wry produce;
Our springs insensibly lost health restore—
All aches dispelled by their luxurious use."

As the early history of the numerous springs of Ischia has been most amply written, and indeed their more modern history also (except in a critical medical sense), I shall say little about any of them except those which I visited. My main object was to ascertain what the real state of the bathing arrangements was, and to become acquainted with the general aspect of the localities, as in the month of February, when I was there, the bathing season had not commenced.

After a beautiful sail of three and a half hours in the steamer from Naples, crossing on the way the mouth of the bay of Baiæ, passing the fine headland of Misenum and the thickly-housed island of Procida, we were nearing the town of Ischia, with its lofty castle, when we suddenly shot through a narrow artificial channel, and found ourselves in a small bay—in fact, in an old crater filled up with sea-water. The sea being a little rough, this bay had been selected as a safe anchorage for the night; and the steamer did not proceed as usual to Casamicciola.

Close to the landing-place are some small baths, built a few years ago, and a good deal used, although they have lost the reputation they had in past ages. They are supposed to be the waters considered by the ancients good in stone. These baths—the Bagni d'Ischia—are fed by two sources, the Fornello and the Fontana. They are said to stimulate the constitution and to restore nervous energy, and are recommended in paralysis and rheumatism, and in want of tone.

Starting for Casamicciola, two and a half miles off, in which the interest of the waters of the island is concentrated, one proceeds up hill on an excellent road, on leaving on the right, the waters of Castiglione and its stufe, which I did not visit—the one close to the sea, the others on the rock above. The heat of the waters is intense, and the sand near them gets heated up to 200°. One hot spring rises in the sea. The water is more aperient than that of any of the other springs, and used chiefly in affections of the digestive organs; but the arrangements are old, and the waters are not much used.

Casamicciola, the chief place for strangers, although the towns of Ischia and Foria are more populous, is beautifully situated, two or three hundred feet above the sea, and encircled by hills, above all which the rugged mass of Epomeo predominates. It contains excellent hotels, two large private, and one great public bathing establishment. There are a few *pensions*, and during the great summer heat patients are certainly better in those of them placed on any heights, or in such hotels as the great and little Sentinelle, which are kept open throughout the year, than down in the village.

The two chief of the numerous springs here are the Gurgitello and the Capone—the first the most abundant, the second not containing so much alkali. The first is used most for baths, though also for drinking; the latter more internally, especially in affections of the stomach. The two sets of private baths have all the latest arrangements, and seem to leave nothing to be desired. They have everything that is to be found in the most modern French and German establishments. The public baths are on a large scale, and the chief bath-room is one of the most imposing structures of the kind that I have ever seen, having a range on either side of white marble baths, counting, I think, eighty-five in number, the stone all brought by sea. Patients are sent here from the Naples hospitals for four months of the year. During two months soldiers only are admitted; civil patients and women, each for one.

Rheumatism, gout, and paralysis, and old injuries are treated here, also some cutaneous affections. The waters are useful in many disorders of the female system, and no doubt would be so in gravel, but they do not seem to be used for it.

In the middle of winter I only found a few American ladies taking the baths, but there is no reason why they should not be much more extensively used at this season—as the baths have hotels attached to them, and there is no objection to their low situation at that period of the year. I am told that in summer there is always a gay and crowded scene near the baths, and that the number of visitors is increasing. The great bulk of them are Italians.

The ravines behind are full of springs, and some of them contain baths now in a state of neglect. The Tambour, so called from the rumbling noise which it makes, is almost forgotten, and within its ravine the Auro and the Argento, as well as the Ferro or chalybeate springs, appear now to be lost. I walked to Rita, where the spring was said to be very hot; the temperature of its water was 126°, less than I expected. It is in a ravine about ten minutes' walk from Casamicciola. It deposits on the walls of its rather rude baths, of which it numbers one or two, an abundant layer apparently of sal ammoniac such as was mentioned at San Germano. These hot waters yield also a green glutinous deposit of confervæ, which forms excellent *fangho*. The waters are chiefly used by the country-people for washing, but there can be no doubt of their value, especially in old sprains and injuries, for which the *fangho* makes a useful application.

Going on from Rita, I descended on the village of Lacco, with its beautiful little bay excellent for sea-bathing, and where an Englishman had just sacrificed his life by imprudently indulging in it.[1] Here are the waters of San Restituto, in a sufficient establishment. There is some doubt as to their constituents, but they have been usually supposed to be much stronger than those of Gurgitello. Here also is the chief station in the island for arenation. The process used to be carried out on the open sand and in the sun, only with the head sheltered from it, but now it is practised inside the bath-house; the hole in the sand must not be too deep, otherwise hot water will ooze into it, as at the one formerly existing near Sabvenihomini. It is necessary to see that the sand is not too hot, and the patient is not kept too long in the bath, or his skin may be blistered. Some think it best to apply the sand to the bare skin, others prefer that the patient should be enveloped in a sheet. It is necessary of course to bathe in water after this or after a sand-bath. The ancients used generally to be anointed after them. They had great faith in this practice in dropsy. It is undoubtedly very efficacious in rheumatism and stiff joints.

Leaving the height of San Montano and its bath on the right, I ascended the hill above Lacco, where are the stufe that are most used in the island, although they are comparatively modern—those of San Lorenzo. They are somewhat in the style of San Germano, only smaller. The arrangements are a little primitive; still the peasant woman who seemed to be in charge of the stufe appeared to have a very good notion of making both general and local applications of the heated air.

---

[1] He felt a chill when he came out of the water; reaction did not take place. There was no one who could explain his condition to the villagers, and when at last a doctor was procured, he bled the already sinking patient.

Proceeding on for a couple of miles, I passed through the old-fashioned town of Foria, with its promontory and church on it jutting out into the sea, and then toiled along the heavy sea-sand of the shore, with a sun overhead trying even in February, to the far-famed well of Citara. Its temperature is about 106°, and it has a rude piscina, and the remains of some stufe near it; but it is in a state of great neglect. The name, although its etymology is uncertain, seems to point to the supposed virtues of the waters. It is as famous a cure for sterility as ever, but no one drinks on the spot, a few country-people excepted. The water is carried on mules to Casa Micciola, where it is drunk. I was told many a story of the wonderful effects it has produced in lady visitors to that place. The water is slightly purgative, and may operate by removing uterine congestion.

Retracing my steps to Foria, and going a little way out of the town, I visited the waters of Ceriglio, of a temperature of 93°; they rise in a small bathing establishment, which is private property, and contains 12 baths. It seems a very fairly kept one of its class. These waters contain some sulphate of soda, are slightly aperient, and are used in affections of the digestive organs.

The more distant waters on the same side of the island as Citara I did not attempt to visit; namely, the Aqua di Nitroli and d'Olmitello, in a wild ravine, and the Stufe of Testaccio, and also some minor stufe, and places of arenation. Although Nitroli shows more signs of Roman occupation than any of the other baths, yet it and the others are now neglected. In fact, they offer nothing that cannot be more conveniently got on the other side of the island. I found the wonderfully high walls, with which the roads are bordered, a good protection from the sun on my return.

Ischia has much to recommend it: a very fair winter climate, though not one to select for very delicate chests; a summer heat moderated by sea-breezes; a pleasant people, with picturesque dress, and it is said Greek features, and most industriously turning to account every inch of land, chiefly for their vineyards; an absence of brigandage; waters of the most undoubted virtues; and good sea-bathing. There is an ample supply of mules, and even carriages are to be hired; and those who wish it may have boat excursions. It is very much to be desired that a more accurate account of the effect of the waters, based on observation, should be published, and that a better analysis of them should be made.

I have thus taken a rapid survey of the health resorts of the Bay of Naples. If these lines are superficial and sketchy, in a medical point of view, I must plead the want of good material, and that the superficial observation of medical cases by a passing visitor is of no real value.

The following very simple table, though it is not to be trusted, may give a comparative notion of the temperature and chief mineral contents of some of the springs we have been visiting.

Table of the number of parts in 1000 of some of the Salts of Waters in the Bay of Naples.

	Pozzuoli.		Castellamare.		Ischia.			
	Subveni, 86°.	Serapis, 98·8°.	Muriglione.	Pozzilla.	Gurgitello, 145°—158°.	Capone, 110°.	Rita, 158°.	Citara, 116°—122°.
Carbonate of soda,	...	2·2	0·5	0·9	2·8	0·6	1·1	0·2
Sulphate of soda, .	1·0	....	0·4	0·4	0·6	0·3	0·5	0·38
Chloride of sodium,	6·2	4·0	4·0	2·2	3·0	3·9	1·2	4·8

A large quantity of carbonic acid is present in all these waters.

VIVISECTION.

There are, or have very recently been, two Vivisection Bills before Parliament; one introduced into the House of Lords by Lord Henniker, the other into the House of Commons by Lyon Playfair and others. Further progress of them is arrested by the announcement of a member of the Government that a Royal Commission is to be appointed to report on the subject.

The whole affair is to be greatly regretted, for little if any good can be expected from it—indeed, nothing but evil, if more wisdom than hitherto is not displayed in future. We understand that the framers of the bills were moved chiefly by clamour, and we are sorry they yielded to it. Of its very existence we have some doubt, and we are at least glad to see that the consequent bills have not been hailed with applause by any section of the public.

The object of the bills is to diminish the scientific use of vivisection, and to reduce to a minimum the sufferings inflicted. Of these, the former is only perhaps a noble object; the latter is certainly so, and we shall be glad to see anything done with that view which has a reasonable chance of securing the result without producing a greater evil; but of this we must say we have no prospect, for the bills referred to are very ill-considered, and deserve their not untimely fate.

Of all the forms of cruelty to animals of which we know, scientific vivisection is the most justifiable. It indeed does, in theory, need no justification, for it is making a fair use of the beasts of the field to promote the best interests of mankind. That ignorant and prejudiced individuals should, under the influence of amiable feelings, try to put a stop to it, does not in the least astonish us. Such people are numerous and often noisy, and would, if permitted, try to make us all religious and moral to a pattern, and at once, by their finely-greased machinery. But that scientific men, or their representatives in Parliament, should come forward to embarrass scientific pursuit, without good reason and fairplay to all, has greatly annoyed and grieved us, and many of their supporters.

Pigeon-shooting, fox-hunting, rabbit-ferreting, and other wholesale and retail torturing of animals, are sacred, and scientific Members of Parliament may even take part in them. They have given up the difficult and laborious pursuits in which vivisection may be turned to account, or have lost interest in them, and now they propose to sell the convenience of scientific investigation, and science itself, for a pittance of political gain. They go to a non-scientific House of Lords or of Commons to get science embarrassed in its progress, for no good reason. They ask their fellow-members to compound for sins they are inclined to, by damning those they have no mind to; or rather divert attention from their own sins of cruelty, by sanctimoniously trying to arrest the most easily justifiable cruelty by others.

As we shall hear no more of the bills referred to, it is scarcely necessary to speak farther of them. That introduced into the House of Commons was in some respects the worse of the two. We shall not attempt to give an idea of the annoyance and expense to which, had it passed, scientific men would have been subjected, but we may point out one or two consequences that would have followed its passing. A teacher could not have shown the frog's foot to his class. He could not have shown a typical illustrative experiment. He could not try an experiment without making sure it had not been done before. He could not verify by trial the results of a brother scientific man.

We shall await with anxiety the result arrived at by the Royal Commission, and in the meantime express a conviction, that there is no sufficient clamour about vivisection to demand any legislation at all, and that the great interests of the lower animals should meantime be left to the care of public opinion, and the societies whose useful operations are conducted under the Cruelty to Animals Acts.

It will be a bad day for the country when science is driven to the wall, that some political gain may be got by yielding to the weak-kneed and misplaced benevolence of some men, and these chiefly women. The Archbishop of Canterbury blesses a machine for wholesale devastation, death, and wreaked fury on fellow-men. The prince and the peasant happily join in amusing themselves by torturing lower animals. But the poor hard-working scientific investigator is to get nothing but cold shoulder, snubbing, fine, and imprisonment.

Part Second.

REVIEWS.

Clinical Lectures and Essays. By Sir James Paget, Bart., F.R.S., D.C.L. Oxon., LL.D. Cantab., etc. Edited by Howard Marsh, F.R.C.S., Assistant-Surgeon to St Bartholomew's Hospital. London: Longmans, Green, and Co.: 1875.

When the profession is honoured, and its knowledge extended by having the matured wisdom and experience of one of the masters of his art laid before them, clothed in language of singular fitness and beauty, which has in every page the graces, not only of high culture, but of innate refinement of heart and mind, the reviewer's task is a pleasure. He has to accept, not to criticise; to enrich, and yet tantalize his readers by quotation, rather than amuse them by highly-spiced condemnation. Even when differing from Sir James, either in theory or practice, it is impossible to avoid the feeling that he may be right after all, and that at least he is satisfied in his own mind as to what he says, else he would not have said it; for his modesty is as great as his experience, and he has neither self-consciousness nor self-assertion.

Of the sixteen subjects treated in this work, all are not of equal importance, nor treated with equal detail. In some the author has been less happy, less assured, less confident, but every page has some wise thought or axiom—the outcome and result of a large and very exceptional kind of experience. There is no attempt at systematic lecturing, historical completeness, or precision of details—these may be better given by younger men; but in each lecture there is an attempt to lift the student or practitioner into the same high platform which the author himself has at last attained, after his forty years of practice.

In his really too modest preface (but still quite honest, and characteristic in its modesty), Sir James says he intends his work for "students and those who have too few opportunities of studying surgery in either large practice or large books." In this we disagree with him, as we think that hospital surgeons and teachers will probably profit more by the work than their younger and less-favoured brethren.

The greater part of the work has already been published in some form or other; rescued from the pages of weekly journals or yearly reports. The material is now bound up in a readable form, with good type, and corrections—with also some excellent notes by the editor, whose work has been well done.

The first lecture is on the various risks of operation. It tempts quotation in its entirety, but one or two passages must suffice:—

"Where then shall we find the lowest rates of mortality and other mischiefs? Perhaps you may find them in a class whom you may often study here. We have a large number of printing-offices in the neighbourhood of the hospital; and every office employs many boys from twelve to sixteen years old; and hardly a week passes but we have one or more of these boys brought in crushed by the printing-machines. Fingers, hands, and arms are thus mutilated; and I know no class of patients that recover more remarkably. Not only do they not die, but their wounds heal steadily and quickly; they escape erysipelas and spreading suppurations and secondary hæmorrhages; and often, when, to save any piece of a hand, we leave bits of skin that seem as if they could not live, they yet do live and grow good scars. I know no class of persons who are better subjects for operations than these boys. As Mr Callender[1] has pointed out, our success with them helps to bring us the credit of a very low rate of mortality in amputations of the upper extremity." (P. 4.)

"For the over-fat are certainly a bad class, especially when their fatness is not hereditary, but may be referred in any degree to their over-eating, soaking, indolence, and defective excretions. The worst of this class are such as have soft, loose, flabby, and yellow fat, and I think you may know them by their bellies being pendulous and more prominent than even their thick subcutaneous fat accounts for; for this shape tells of thick omental fat, and, I suppose, of defective portal circulation. I know no operations in which I more nearly despair of doing good than in those for umbilical hernia or for compound fractures in people that are over-fat after this fashion. Nothing short of the clearest evidence of necessity or of great probable good should lead you to advise cutting operations in people of this kind. Do lithotrity for them rather than lithotomy; incline against amputations for even bad compound fractures; and, wherever you can—as, for instance, for cutaneous cysts, hæmorrhoids, and the smaller examples of scirrhous mammary cancers—use caustics rather than the knife or ligature." (P. 14.)

After hearing Sir James say "a secondary amputation is a confession of either a mistake or a disappointment," we are not surprised to find that he counsels "waiting," rather than amputation, in the course of an erysipelas or a chronic pyæmia.

On the relation of disease of heart to chloroform and operations, few will disagree with the following:—

"Diseases of the heart are, on the whole, much less serious hindrances to recovery from operations than you might suppose. Doubtless, patients with very weak fatty hearts are in some greater danger from chloroform than others are; but when it is cautiously given, even these may take it safely; and I have never heard or seen anything that would make me think the administration of chloroform specially dangerous in any such patients with diseased hearts as a reasonable man would think of operating on. I have known it administered to patients with considerable valvular disease without any appearance of danger; and certainly, in any such case, the risk of chloroform would be less than that of the pain and alarm attending any considerable operation performed without it." (P. 30.)

"I do not know by how many times the risks of a given operation are increased in any patient who has albuminuria, but I do know that you will find it a safe rule never to perform any operation without an acquaintance with the manner in which the patient's kidneys discharge their function; and never to perform one, except under something like compulsion, on a patient whose urine is constantly albuminous. I do not say that you should never operate on such a patient, for the exigencies of the local disease may justify you, as they may justify you in operating in the advanced phthisis; but be clear that you operate against heavy odds; for even if the patient do not die with erysipelas, or pyæmia, or some other form of diseased blood, he will be apt to linger with a wound half-healed, till at last he dies of his renal disease, just as if you had done nothing." (P. 39.)

---

[1] St Bartholomew Hospital Reports, vol. v. p. 248.

"By the way, let me tell you of a symptom which must make you especially cautious if you have to catheterize elderly or old men. If they are passing large quantities of pale urine of very low specific gravity, whether containing a trace of albumen or not, they will be in danger from even the most gentle catheterism. For this condition of the urine is often due to some advanced defect of action in the kidneys, and catheterism will be followed by inflammation of the bladder, and the so-called urinary fever, and death will hardly be escaped." (P. 44.)

"If I may venture on a large general statement upon such a point, I will say that each man's capacity for bearing a surgical operation may be best measured by the power of his excretory organs in the circumstances in which the operation will place him. But the means of regulating this power, or of increasing it, must be as various as are the patients themselves. You must study the whole matter very carefully; and I hope I shall not have wasted either your time or my own if I shall have enabled you to start from the point which, after many years' work, I have reached." (P. 50.)

The Calamities of Surgery is a fit name for a most interesting chapter. Both in common sense and sound surgical principle, the following can hardly be surpassed :—

"First, don't be too ready to operate in your own houses or in your own rooms. It is a thing too commonly done, and always involves a risk which should not be incurred without need. Mr Thomas Blizard, who was in his time one of the most distinguished surgeons in London, when he began practice in the city, was once consulted at his house by a merchant of great wealth and influence, who thought he would patronize the young man; for he knew his family. He called on Mr Blizard one morning, showed him a cyst on his back, and asked him to remove it; and he removed it then and there. The merchant went away, caught cold, had erysipelas, and died in ten days. I do not know what amount of unhappiness the case excited at the time; but I know that Mr Blizard told it in after life with the greatest regret; and that, as a measurable amount of part of the calamity to himself, his income fell 50 per cent. after that year, and was not quickly recovered. It rose to a very large amount before he retired, but 50 per cent. for a year was the amount of damage which he sustained by not observing the rule, of not operating in your own rooms without a real need of doing so. You may do an operation there with all dexterity and care; but you do not know what the patient will do afterwards. Especially, let me advise you not to sound a patient for the first time, or to pass a catheter in a man of questionable general health for the first time, in your own room." (P. 65.)

And as to needless operations :—

"Again in cases of varicocele: patients come to you, begging for cure; and nearly all of them are merely nervous, hypochrondriacal, morbidly-brained people, who are in fright about varicoceles, which they suppose to be the causes of impotence and wasting of the testicle. Now, no varicocele, to the best of my belief, ever did cause impotence or waste a testicle. But the operation for varicocele is not altogether free from danger. A most skilful operator for this disease reported, the other day, a case in which he himself operated, and the patient very nearly lost his life. Once, also, I saw a young man with pyæmia following an operation for varicocele, which had been done very skilfully. Through this pyæmia he had acute suppurative inflammation of his right shoulder, his right knee, and his left hip; and they were all spoiled, and he very nearly died. I doubt whether ninety-nine operations for varicocele would do good enough to balance one such calamity; for of the ninety-nine operations the majority would have been quite unnecessary. Varicocele can, in a vast majority of cases, be perfectly well managed with a ring, or a truss, or suspensory bandage and cold water, and the operation may be wholly dispensed with: the more properly because varicocele is not a mischievous disease, and has nothing to do with the impotence or other sexual distresses that patients ascribe to it." (P. 68.)

Under Cases that Bone-setters Cure, we find a good account of treatment of sprains, etc., in which the salient point which strikes us, is a wise warning against a too free use of the *cold douche* and the *elastic bandage*, both powerful and dangerous remedies.

The four lectures on Strangulated Hernia contain much valuable practical advice—on the question of operation when there are no local signs of strangulation; on the significance and importance of *vomiting* as a symptom, p. 113. On the treatment of omentum:—

> "But it sometimes happens, when the abdomen is tense with over-filled intestine, that you cannot return a large piece of omentum without much difficulty. What then? Shall you cut it off or leave it in the sac? I advise you to leave it. I believe that the cutting-off, with the necessary ligatures or other fastenings of vessels, adds to the dangers to life; while the leaving of omentum is only sometimes followed by greater difficulty in the fitting of a truss—a difficulty which is not great enough to justify any risk of life." (P. 137.)

On state of intestine:—

> "But the chief questions in these operations are concerned with the state of the strangulated intestine and the manner of dealing with it. You are to judge chiefly from the colour and the tenacity. Use your eyes and your fingers; sometimes your nose; very seldom your ears, for what you may be told about time of strangulation, sensations, and the rest, is as likely to mislead you as to guide aright." (P. 138.)

In reading the six lectures on Nervous Mimicry, we find less firmness of handling, a less assured touch, consequently they are less axiomatic, and less quotable; but they give much information on a difficult subject, of which the author's practice among the higher classes of society has given him a large experience.

Regarding the treatment of Carbuncle without incision, recommended in the lecture on this disease, there may be differences of opinion; still, we must accept the reconsidered opinion of one who has had much experience, as showing there is much to be said on both sides of the question.

Probably the most valuable lecture, certainly the most difficult to write, is the one on Sexual Hypochondriasis, which, in its scientific method, high-toned morality, and clearness and sweetness of its whole atmosphere, is in refreshing contrast to most of the productions on this difficult subject.

We have not time to linger on Gouty Phlebitis, Residual Abscess, or the most interesting personal narrative which enriches the lecture on Dissection Wounds, which ends with the following characteristic sentence, with which we may close this brief notice:—

> "Sir William Lawrence used to say that he had not known any one recover on whose case seven had consulted. Our art has improved. I had the happi-

ness of being attended by ten: Sir Thomas Watson, Dr Burrows, Sir William Jenner, Dr Gull, Dr Andrew, Dr Gee, Mr Cæsar Hawkins, Mr Savory, Mr Thomas Smith, and Mr Karkeek. In this multitude of counsellors was safety. The gratitude I owe to them is more than I can tell—more than all the evidences of my esteem can ever prove." (P. 338.)

Des Paralysies Bulbaires, etc. etc.: Thèse présentée au Concours pour l'Agrégation, etc. Par le Dr Hallopeau. P. 155. Paris: Baillière et Fils. 1875.

In this thesis, Dr Hallopeau describes the palsies which have their seat in the medulla oblongata. It contains a useful summary of researches by French physicians, but more particularly Duchenne and Charcot, into those serious palsies which depend upon structural degenerations of the cord and bulb, and which are for the most part progressive and incurable. More especially full descriptions are given of the pathological anatomy and symptoms of labio-glosso-laryngeal paralysis. General spinal paralysis, wasting palsy, and the general paresis of the insane, are also elucidated, and various illustrative cases are detailed. Hysteric, diphtheritic, and hæmorrhagic palsies have briefer notice. Treatment is, however, omitted, and only incidentally referred to in the reports of cases. The researches of British physicians do not seem to be known to Dr Hallopeau; but in so far as the thesis gives a summary of the more recent researches of French physicians, it is a useful work, and manifests signs of care in the production.

Virchow's Archiv, Ausgegeben am 15 Februar. "*Ueber das Verhalten der Vandungen der Blutgefässe bei der emigration weisser Blutkörper.*" Von Prof. Dr Julius Arnold in Heidelberg.

It being now established that, in inflammation, white corpuscles migrate through the walls of the bloodvessels, and it being probable that such migration, in limited amount, may even constitute one of the phenomena of ordinary nutrition, it has become a matter of much importance to determine with precision in what manner the corpuscles effect the transit of the vascular wall. Is the wall, as has been suggested by some of the older observers, a homogeneous glue-like membrane, the substance of which is capable of flowing together, and obliterating all trace of the perforations made in it; or are there, as Recklinghausen has suggested, natural openings or pores between the cells of the living epithelium, through which nutrient juices and migrating corpuscles are alike capable of making their escape? It is to the solution of this question that Professor Arnold addresses himself in the present treatise. The methods of experiment which he employs are very simple and familiar; the only novelty consisting in their combination. In the first place, he injects into the vascular system of the frog a quantity of finely-divided cinnabar. The advantage of this preliminary operation is, that the white corpuscles become much more prominently visible, since, as is well known, they always take into their substance a quantity of such finely granular pigment. Secondly, the author excites, after the ordinary methods, inflammation in the animal's mesentery, tongue, or bladder. Thirdly, having allowed the inflammation to proceed for about twenty-four hours, he bleeds the animal to death, and immediately injects into the vascular system from the aortic bulb a dilute solution of the nitrate of silver, 1 to 2000–3000. This last is the old experiment of Recklinghausen, and is the best means of obtaining a demonstration of the epithelial lining of the capillaries, for the silver is found to stain more especially the sutures between the epithelial cells. It will be seen that such a combination of experiments must furnish conditions most favourable for the determination of the present question. The corpuscles are caused to migrate by the establishment of inflammation, and the relations of the migrating corpuscles to the vascular wall are brought prominently into relief by artificially staining both the wall and the corpuscle.

The chief results of Professor Arnold's investigations are the following:—

1. As the result of the nitrate of silver injection, there are rendered visible not only the sutures between the cells, but also, at certain points in these sutures, little dots or points which the author calls "stigmata," and which he regards as small openings.

2. He finds that in inflammation the migrating corpuscles *never perforate the epithelial cells*, but always escape by the suture, and more especially by the stigmata.

3. He finds that coloured fluids and insoluble particles held in suspension pass through the vascular wall in the same way; and in the case of cinnabar, many of the particles being arrested in their passage, he has often obtained a beautiful demonstration of the cell limits, more striking even than that obtained by means of the nitrate of silver.

4. He has found that colloid materials are capable of transmission in the same manner. He has proved this by means of solutions of glue or gum, coloured with Berlin blue. In such instances, he found the coloured material passing freely through the stigmata and intercellular spaces, and extending into the tissues, in the form of button-like protuberances or long processes.

5. He observes that the escape of red corpuscles is most apt to occur when the small stigmata have become considerably enlarged. To employ his own terminology, the stigmata might then more properly be called "stomata."

At the conclusion of his paper, the author states that, since finishing his investigations, he has discovered that another observer,

L. Purves, working in the Physiological Laboratory of Utrecht, has been engaged upon the same subject, and has arrived at substantially the same conclusions.

Cases in Surgery illustrative of a New Method of Applying the Wire Ligature in Compound Fractures of the Lower Jaw. By HUGH OWEN THOMAS. Second Edition. Liverpool: Thomas Dobb and Co.: 1875. Pp. 24. With several Lithographs.

COMPOUND fractures of the jaw, with loss of substance and displacement, are among the most difficult of surgical puzzles, and the plan of the wire ligature applied through holes drilled in the edges of the broken fragments is now of very frequent use by all surgeons who have much experience of such cases. Mr Thomas seems to have had an exceptionally large experience of these cases, and certainly the method of operating, which he describes with great plainness in this little work, seems as simple in its plan, and as successful in its results, as it is possible to be. The numerous illustrations add greatly to the value of the work, as rendering the letterpress perfectly intelligible. The cases seem to have been well managed and most successful.

On Reflex Irritations throughout the Genito-Urinary Tract, resulting from Contraction of the Urethra at or near the Meatus Urinarius, Congenital or Acquired. By FESSENDEN N. OTIS, M.D., Clinical Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York. New York: M'Divitt, Campbell, and Co.: 1875.

THIS little pamphlet is an extremely interesting and suggestive collection of cases of severe and long-continued urinary symptoms, caused by, or at least connected with, stricture of the meatus urinarius, and cured by complete division and subsequent dilatation of the stricture. They resemble, both in their pathology and results, those curious cases of incontinence of urine, spinal irritation, and even joint affection, the result of irritation from a long or contracted prepuce, which are so well known from the observations of Trousseau, Sayre, Cadell, and others. Several of the nineteen cases here recorded were of extreme severity and long duration, and had undergone much and varied treatment. Dr Otis is not satisfied with mere dilatation of the orifice, but cuts it in every case, and ensures what most surgeons would call an over-dilatation —so that in some cases he dilates the urethra till it can admit a bulbous sound thirty-four mm. in circumference.

Concerning the Army Medical Department. By UNION. Jubbulpore: 1875.

THIS is one of the numerous pamphlets on the above subject which have lately appeared; and, despite some inaccuracies (which are not unlikely due to press errors in a good many cases), it is one of the ablest of them. The writer (like A. M. D. whose pamphlet we reviewed lately) is a strong advocate for the unification system, as opposed to the old regimental one. The question is considered in detail, and in such a manner as to render it intelligible to the non-military reader, who, of course, has sometimes a difficulty in grasping the full force of points that seem all-important to his army brother. Although the old regimental system still has its advocates, they will become fewer and fewer as years pass by; and the perusal of pamphlets like the present, in which the fallacies concerning it are so ably exposed, will do much towards consigning it to the limbo of "fine old," but utterly impracticable institutions.

Annual Reports of the Royal Edinburgh Asylum; of the Crichton Royal Institution and Southern Counties Asylum; of the Belfast District Hospital for the Insane; of the Cheshire County Asylum; of the Stirling District Asylum; of the State Lunatic Asylum, Utica, N. Y.; and of the Northern Asylum for Insane, Oshkosh, Wisconsin, for 1873.

WE cannot undertake to review all the reports of lunatic asylums sent to us, nor do we intend to insinuate that those we notice are better reports than those which we leave unnoticed. An asylum in good working order with few accidents is, like a peaceful and prosperous reign, likely to be passed over as wanting in interest. We are apt to notice those reports which raise new questions in medicine, and yet it may be fairly held that this is not the proper scope of a yearly report which is mainly intended for the managers and general public.

The Report of the Edinburgh Asylum at Morningside is the first issued by Dr Clouston, the successor of the lamented Dr Skae. It bears the mark of an observant and thoughtful mind. The following quotations will probably be read with interest:—

"The experience of the rest of the country is entirely against the idea that fewer of the insane poor will be sent to lunatic asylums as time goes on. The difficulty of treatment at home, the manifest advantages of a modern well-organized asylum, and the growing intolerance of society of every grade to have in its midst anything disagreeable and abnormal, all tend strongly to increase rather than diminish the numbers of admissions to asylums. The increase of population and wealth act also in the same direction. It scarcely needs the theory that insanity is increasing among us—a theory which few who have examined the question carefully find to be proved—to account for the increase of asylum inmates that has occurred of late years." "Looking at the number of admissions of pauper patients here from each of the parishes that have rights of presentation, the most extraordinary difference is seen in the proportion of the insane to the numbers of the population of those parishes from which they are drawn. The City parish of Edinburgh heads the list as to numbers, having sent us 74 cases, St Cuthbert's comes next with 60 cases, Leith sent us 26, and the Orkney Islands 7. Of the remaining 17 pauper patients, 3 were from Duddingston, and 14 from beyond the district. The City therefore produced, during 1873, lunatics chargeable to the rates in the proportion of 119 to every 100,000 of population; St Cuthbert's in the proportion of 42, Leith 54, and Orkney 22. No set of figures could possibly illustrate better the care which requires to be exercised in coming to conclusions from mere figures, nor their value, if properly looked at. The deduction that insanity is twice as common in the City parish of Edinburgh as in Leith, three times as common as in St Cuthbert's, and five times more frequent than in Orkney, is, of course, too absurd for belief by any one; and yet I have seen conclusions as absurd gravely come to and published in regard to the increase of lunacy."

In the close of his Report, Dr Clouston makes an appeal on behalf of the charity fund of the Royal Edinburgh Asylum:—"Our charity fund is a most useful part of the organization, but it is much too small, and far too little brought under the notice of a charitable and free-handed public. It seems absurd that now, when provision by charitable effort is made for the care and treatment of every sort of malady occurring among the poor, the most painful and distressing of all human ills should not be provided for among a most necessitous and deserving class. Insanity is necessarily an expensive disease to treat, and its existence is ordinarily quite incompatible with the earning of a livelihood; and there are certain classes of people, educated and refined, to whom it is a grievous hardship to be branded with the name of pauper, and placed among those who are rough and uncultivated. Governesses, struggling professional men, and tradespeople, whose whole position and income depend on their brain soundness, are the class of persons I mean; and yet at present in this country there is the slenderest possible provision for helping them when they become insane. This is a cause that I am convinced has merely to be widely enough known to be liberally supported."

The money at the disposal of the managers for this charitable purpose amounts only to £360 a year; but from this small fund twenty-seven patients are at present receiving assistance. This charitable undertaking is one much deserving of support.

The Crichton Institution is as usual distinguished for its remarkably low mortality, though that of the Southern Counties Asylum has been higher than usual, about 8·69 per cent. on the numbers under treatment. This, though in excess of former years, is not an exceptional mortality as regards asylums generally. The following passage about voluntary patients in the Crichton Institution is taken from Dr Gilchrist's Report:—

"The large and increasing proportion of voluntary applicants is worthy of some attention. The numbers have been gradually increasing every year since the Act was passed, but during the last they have more than doubled those admitted on any former occasion.

"The voluntary clause in the recent Act is, doubtless, a great boon to the class of patients who take advantage of it. They are perfectly conscious of their failing health, and are quite aware of the necessity for securing refuge and protection within the walls of the asylum; but as a rule they are a timid class, and would never have had courage to undergo the worry and encounter the publicity involved in the ordinary process required to make them certificated patients. Undoubtedly, but for the privacy and quietude thus secured for them by voluntary admission, a considerable proportion would have remained at home till advancing disease had compelled their removal, with what results to themselves and their relatives need not be related.

"The probable abuse of the voluntary clause suggests itself, for it is characterized by inexpensiveness as well as privacy.

"On carefully looking over the twenty-three admissions, there is only one about which there can be any doubt, and the peculiarity of the case is, that the patient may be said to be sane during the day but insane during the night."

In the Forty-fourth Report of the Belfast District Asylum for the Insane, Dr Stewart, who, we think, is the oldest superintendent in Ireland, gives us the result of his experience on restraint. "It has been the exception to the rule during the past year the having recourse to mechanical restraint, the disuse of which has been the regular practice here since the opening of the Institution in 1829; but, in stating this, it is not to be understood that cases do not occur in which it would be nothing short of both an act of cruelty, as well as a dereliction of duty, not to use the restraint of a camisole, or such like mild form of coercive means, for the preventing of danger to both patient and attendant; and no morbid fear of consequences should prevent medical superintendents from this discharge of a bounden duty towards their patients when the occasion demands it of them."

Assaults on medical superintendents are not so common as one might be inclined to think, but they are seldom recorded, though accidents to patients always are.

"During the past year the resident physician escaped, almost by a miracle, a sudden and violent termination of his life, having been attacked on two separate occasions by two male homicidal inmates —in the first instance by an attempt at strangulation, and in the second by a severe stab in the face, close to the eye, with a sharpened knitting-needle, which, had it entered it, would most likely have been fatal, from the great and determined force with which the blow was inflicted. Again, on two occasions, afterwards the same patient who stabbed the resident physician, similarly injured two of the male attendants, one on the face also, but not very seriously; the other, however, of a more severe character; the eye of the attendant having been wounded, and from the effects of which he has not yet entirely recovered."

Amongst the noteworthy things in Dr Deas's Report of the Cheshire County Asylum is an investigation of the complaints of a Mrs Petschler, which was made by two Commissioners in Lunacy. Asylum superintendents are apt to be much harassed by vicious patients or their unreasonable relations, and it is not always that their complaints are brought forward in such a form that they can be thoroughly exposed and refuted, as was the case in the present instance. Dr Deas has got a sewage farm, and has republished two letters, in which he shows that excellent milk and butter can be got from grass irrigated in this manner.

The following is a vigorous complaint against a most objectionable practice which is met with both in Great Britain and America:—

"Before I leave the admissions," writes Dr Deas, "I would like to make a remark on a most important subject, namely, the prevalent practice of bringing patients to the asylum without informing them of their destination, and under all sorts of false or frivolous pretences. Nothing can be more injudicious; and of the strong and lasting impression which deception of this sort often makes on the patient's mind we had a striking example during the year, in the course of the inquiry into Mrs Petschler's case. A feeling of having been wronged and deceived naturally arises in the patient's mind, which is transferred (also quite naturally) to those under whose care he is placed; and thus distrust and suspicion are engendered at the outset, instead of confidence and that sense of security, which, once inspired, is in itself a great help towards recovery.

"The difficulty of persuading a patient to come of his own accord to the asylum is very much exaggerated. In nine cases out of ten, if the matter is put plainly and quietly to him, and he is told that the step is a necessary one, no difficulty will be experienced; and even if there should be any, it is better to resort to force than to deception. It is almost amusing to watch the fear which often possesses those who bring a patient, lest the latter should get the least hint of where he has come to, until he is fairly out of their hands. You will be told in a knowing way, with many a nod and wink, that they were just out for a drive, and had brought their friend to see this beautiful place. In another case, the patient has been brought to consult a 'distinguished doctor' about his health; or he is being taken to a 'hydropathic establishment;' or to see after getting a place or situation. The inventor of these pleasant stories then hurries off, thinking he has managed very cleverly, and leaves it to us to explain, as best we may, the deception which has been practised."

In the Report of the Stirling District Asylum, Dr Frederick Skae gives views which he has evidently thought out for himself in very well-chosen terms. "It is," he writes, "a fact of common observation, that those patients who are placed early under treatment recover in a very much larger proportion than those who are not sent to an asylum until the disease has existed for some time, and become confirmed. It is commonly inferred from this that a patient's best chance of recovery is secured by removing him to an asylum as soon as his malady is declared, and also that a great amount of the chronic and incurable insanity is owing to the neglect of early asylum treatment. Although there is an evident gap in this style of reasoning, there can be no doubt it sometimes happens that asylum treatment is delayed from unworthy or foolish motives till it is too late. But an examination into the history of this large number of incurable cases does not confirm the expectation which might be formed, that in many of them incurability was due to delay in sending them to an asylum. Indeed, there are only two out of the whole number with reference to whom I could form a strong opinion that their prospects of recovery had probably suffered by such delay. It seemed evident that incurability in almost all the others had been determined by causes which could not have been successfully combated by asylum treatment, no matter how early it had been obtained. Seven of them were labouring under general paralysis, a disease which is always incurable and fatal, however early it is treated. Five were epileptics, whose insanity was the slow but inevitable consequence of the epilepsy which had long previously existed, and was not of itself a sufficient reason for sending them to an asylum. Three were congenital idiots, who had latterly become unmanageable at home. Three were suffering simply from dementia, the mental obliteration due to cerebral decay in extreme old age. At least two had become insane from intemperance; and of these, as of the epileptics, it may be said that incurable insanity was the result of an obvious and long-existing cause, which could not of itself justify the patients being sent to asylums. Nine of them were cases of this sort:—They were persons of naturally weak mind, and having a strong tendency to insanity, as evinced both by their own peculiar mental formation, and by the amount of insanity in their families. Some trivial exciting cause had been enough to turn the balance, and render them distinctly insane. Their new condition seems but the natural outcome of their former, and quite as incurable. Fourteen of them belonged to a class of cases which also, I believe, forms a large proportion of the incurably insane. In these persons, delusions not glaringly insane, and unaccompanied by remarkable excitement, are for some time the sole symptoms. They creep gradually into the mind, and become firmly established before they have affected the conduct, or attract any serious attention. They are irretrievably fixed in the patient's mind before he even gives expression to them. If, for example, a man conceives an unfounded jealousy of his wife's conduct, or a suspicion that his fellow-workmen are conspiring against him, or a delusion that his heart, or brain, or liver, are being worked upon by some unseen agencies, he will hold his tongue and brood over such unnatural things for a long time. Even when he does commence to speak about them, it is at first in a reserved, tentative, almost reasonable manner; and, however much his wife or family may be surprised and puzzled by the whimsical nature of his fancies, it is long before it strikes them that he is fast becoming a dangerous lunatic. Such men will continue to work at their usual trade for months, in a more or less regular way, without attracting serious attention. They are the victims of a malady as insidious and incurable as general paralysis, long before they are thought to be insane even by their nearest relatives; and it may almost be said of them that they are incurable first, and insane afterwards. Several of the cases to whom these remarks apply, had only been noticed to be insane for a few days or weeks before they were sent to the asylum. Their recognised insanity dated from some overt act or extravagance of conduct, by which they gave expression to their delusions; and it was not until a special examination was made into the condition of their minds, that the real bearing of many oddities was perceived, and the great extent and long standing of the mischief was clearly brought to light. I very much doubt if there was any period of their illness at which they could have been cured by asylum treatment."

Of the American Reports which have reached us, we may say that they are in general longer than the British ones, and are evidently desired to be read by the general public. They contain advice about the importance of attention to hygienic rules and the advantage of applying early to a medical man on the first appearance of insanity, and other considerations which it is difficult to make people learn when in health. One very praiseworthy measure of the managers of the State Lunatic Asylum at Utica is the appointment of a pathologist to examine the anatomical changes found in those who die under insanity. The present holder of the post is Mr Theodor Deecke, who has already given proofs of his ability and research by some interesting papers in the American Journal of Mental Science.

Some cases are described, with the results of post-mortem examination.

The following passage gives some of Dr Gray's views on medical treatment:—

"In anæmic women with profuse hæmorrhagic menstruation, we have found benefit from the administration of 20 grains of gallic acid, from 20 to 30 drops of fluid extract of ergot, one drachm of glycerine, and 3 ounces of water, three times a day during the flow. Usually improvement takes place in the mental condition with the improved nutrition and assimilation. Along with these remedies we also find it necessary to use sedatives and hypnotics, as chloral, hyoscyamus, conium, morphia, lupulin, cannabis Indica, both alone and in combination. Chloral alone is used ordinarily in doses from 20 to 30 grains; sometimes, however, 60 grains are required; and in combination, 20 to 30 grains with one to two drachms of hyoscyamus. When there is much muscular restlessness, 20 to 60 drops of fluid extract of conium are given at a dose. And in some of these cases it is advisable to give conium through the day, and chloral and hyoscyamus at night.

"It is a well-established fact that purgatives are not ordinarily indicated in cases of insanity, but that the condition of constipation is best met and overcome by laxatives. We use the fluid extract of rhamnus frangula, as prepared by Dr E. R. Squibb, of Brooklyn. The usual dose is one drachm given at bedtime. If, however, this is not sufficient, the dose may be repeated as often as four times a day, and its effect may be increased by adding five drops of the tincture of nux vomica to each dose. We have used this remedy for some ten years, and consider it among the most valuable laxatives. It acts as a stomachic and tonic, and does not lose its effect or require to be increased in quantity from protracted use."

The following passage is taken from the Report of Dr Kempster, superintendent of the asylum at Oshkosh, Wisconsin:—

"When, therefore, any extraordinary 'nervous' symptoms arise, especially when complicated with restlessness, irritability, and loss of sleep, which is always unnatural, let no time be lost; consult an intelligent physician, lay *all* the facts before him, and be guided by his judgment. It is in the beginning of the disease that it is controllable. It cannot be 'worked off.' Rest is what is needed. Rest for the body—release from the cares and perplexities of business or professional life. The brain needs repose, and must have it; if the demands it makes are unheeded, and under the impression that extra exertion must be made to shake off these feelings, more labour is imposed upon the already overtaxed brain, the disease is but hastened onward. When it has manifested itself, and the conditions are such that the person cannot be properly cared for at home—and but few can be—place the patient at once in an hospital. Nothing is to be gained by procrastination, as the experience of every civilized country has long ago demonstrated. The disease neglected in its earlier stages insures with unerring certainty, in the great majority of cases, prolonged, even life-long, insanity."

Twenty-third Report on the District, Criminal, and Private Lunatic Asylums in Ireland, etc. Dublin: 1874.

THE most noticeable change in the Irish Lunatic Asylums Report is the increased size, which seems to be mainly owing to the printing of the entries made in the asylum books by the visiting inspectors. On the whole, we think it would be as well if these entries were still to be unprinted. They are no addition to the literature of the country; and the mere fact that they are to be published is apt to render the inspectors unwilling to retract anything erroneous which they have put down; at least, such has been found to be the case in Great Britain.

There is scarcely anything likely to be of general interest to medical men in this blue-book.

We venture the following quotations:—

"We shall now analyze the general result of treatment in District Asylums during the year under review. On the 31st December 1872, their inmates amounted to 7140. In 1873, at the corresponding period, there were 7347, or an increase of 207. The admissions during the years 1872 and 1873 respectively, were 2165 and 2277, being an increase of 112 in the latter; the total discharges in 1872, 1364; in 1873, 1398, or 34 more. The total deaths show an increase of 27 as compared with those in the year 1872, and the escapes, 15 in 1872, were 8 less in 1873. As the daily average number under treatment in 1872 was 7107, and in 1873 7254, making allowance for the increase, the percentage difference on any of the above items is scarcely perceptible. It is satisfactory, however, to observe that the recoveries, whether judged of by actual admissions or the number under treatment, fully sustain the previous favourable character of Irish district asylums.

"The recoveries during the year 1873 amounted to 1034—547 males and 487 females—or nearly 11 per cent. upon the total—9417—under treatment during the twelvemonth. The aggregate deaths in the same period were 665—368 males and 297 females—six resulting from accidental causes. The circumstances connected with these latter cases will be given under the heading of the asylum in which each death occurred. The mortality—or 7·10 per cent. on the entire number in asylums, and for the most part among the aged and infirm—is under the general average elsewhere.

"We would here, from a further experience, take the opportunity to repeat that a percentage upon total numbers is in every respect preferable, because practically more veritable, than one based upon a daily average of patients—unquestionably to one on admissions only, as is almost uniformly adopted in regard to cures, for the last method may involve the fallacy of supposing that the recoveries had taken place exclusively among the admissions, while it might happen that within a given, but exceptional year, there had been more cures than admissions, and in the event of a severe epidemic, even deaths might chance to be in excess of both.

"Analyzed according to the usual mode, the recoveries during the past twelve months in Irish public asylums would realize 45 per cent., and the improvements, as represented by discharged patients, 3, between both fully 58 per cent. on admissions."

The Inspectors publish the revised code of Privy Council Rules for the management of the several district lunatic asylums in Ireland, and at page 6, give these rules their approval without any qualification. The Journal of Mental Science has already pointed out the following regulation as injurious to the dignity of the medical superintendents of asylums:—

"XXXV.—He, the resident medical superintendent, shall never be absent from the asylum at the same time with the matron, nor ever for the night without special leave from a board of governors or the inspectors, and upon every such absence he shall enter in the book the date and period; and inform the consulting and visiting physician, who for the time shall exercise a general supervision over the establishment."

We do not know who originally framed this inquisitorial regulation (they are signed by the Lord-Lieutenant and Privy Councillors); but in order to think well of him, it would be necessary that this was one of the least estimable of his proceedings. Superintendents of asylums are, we believe, a body of honourable men, not requiring any such detective machinery. The pleasure some men feel in controlling the movements of those who may be exposed, in one way or other, to their supervision, should not lead them to inflict useless or unnecessary humiliations.

The tenth regulation seems to us also objectionable:—

"X.—The general dietary shall be regulated by the board of governors, subject to the approval of the inspectors, and to such alterations as they may think fit from time to time to direct. The medical officers shall be at liberty to prescribe such extras as they may deem necessary."

The boards of managers are, as a general rule, totally unfit to frame a proper diet-roll for an asylum, and when they do so, they should be clearly made to understand that they must to a great extent be made responsible for the mortality; for nothing has a greater effect on the mortality of an asylum than the nature of the dietary. The permission given to resident physicians to order extras is a check upon the evil, and might indeed with a little management nullify it to a considerable degree; but common sense, we think, demands that the diet-roll should be framed by the medical superintendents, subject to the approval of the board of managers and the examination and comment of the inspectors in lunacy. It strikes us that it would not be unworthy of the inspectors of lunacy for Ireland if they were a little more anxious to uphold the dignity of the medical superintendents. They have to attend to duties of the highest importance, the care and guardianship of hundreds of human beings deprived of reason, and subject to nervous diseases, which require a most attentive study. If they do their duty in this respect, they must always be hard-worked men; hence it is most unwise to subject them to fritter away their time by demanding trifling returns or making their work difficult by complex and vexatious regulations. It appears from the revised code of regulations that a resident superintendent cannot send the gardener out for a package of seeds without gaining the consent of the board of guardians to the said purchase, and furnishing the man with a signed pass to get past the gatekeeper. But regulations like these always in the end become a dead letter. After every meeting of guardians, the Irish superintendent has, within four days, to send a report of the proceedings to the inspectors of lunacy. The quantity of other clerk work he has to do is sufficient to dull the energy which might well be reserved for more important duties. The medical superintendent should be held responsible for the state of the asylum, and he should not have his authority weakened by such rules as might render his decisions doubtful. By these rules, he cannot even dismiss a servant without the consent of the board; he is allowed to suspend only in cases of drunkenness, insubordination, or cruelty; but he must report to the inspectors, within three days, the name of the party and the cause of suspension, and at next meeting of the board of governors lay before them the case for its decision.

The revised code occupies nearly 20 pages octavo, and enters into the most trifling particulars of the duties of the inferior servants.

The chaplains have to keep a book at the asylum giving the result of their religious ministrations, to be submitted to the board at its meetings, and to be retained in the office.

It is pleasant to think that the inspectors of lunacy have time to attend to so much; only it may occur to the public some day that as a number of the returns they ask from superintendents are only calculated to make useless work, it would be a relief and a saving to the national treasury if their staff of clerks were reduced, and that a Privy Council which has no better work to do than to print regulations telling the cook of an asylum to keep her pots clean, must be in want of something to engage their leisure time, which, we suppose, like Don Quixote's, comprises the greater part of the year.

Fourteenth Report of the Scottish National Institution for the Education of Imbecile Children, Larbert, Stirlingshire.

We have again received the Report of this most valuable and excellent institution, so well managed by Dr Ireland. In a scientific and professional point of view, the work done, and observations made by him there, are of extreme value; while, as a philanthropic institution, this asylum deserves all the support, pecuniary help, and influential encouragement that we as medical men can give it. It is doing a great work among the idiot and imbecile children of the country, and affords a model to which similar institutions may look for guidance.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LIV.—MEETING VIII.

Wednesday, 2d June.—Dr D. R. HALDANE, *President, in the Chair.*

EXHIBITION OF PATHOLOGICAL SPECIMENS, PATIENTS, ETC.

I. *Mr Bell* showed—(1.) A beautiful specimen of what looked very like SENILE GANGRENE. The patient, however, was a lady, 49 years of age, young-looking for her age; and the grangrene had resulted from a pathological plugging of the popliteal artery, following attacks of fever and pneumonia. He had seen her seven weeks ago in Stirlingshire, but the line of demarcation had not, at that time, formed. Five weeks afterwards, however, it formed, and he therefore amputated below the knee-joint. The patient was making a good recovery.

(2.) A very well-marked specimen of ENCEPHALOID CANCER growing from the dorsum of the foot. Owing to the stupidity of the patient, the history could not be accurately made out. He had received an injury of the foot about two years ago, which was not followed by any bad results until six months afterwards, when a cystic tumour appeared. This was excised entirely by his medical attendant. Within the last six months, however, this large growth, of which they saw a section, had appeared. As it bled profusely, the patient when admitted into hospital was very anæmic. After the operation he did well at first; unfortunately, secondary hæmorrhage occurred twice, for which he could only account by the general poverty of the man's system. He was now, however, doing well.

(3.) A TUMOUR weighing three pounds, which he had removed from the popliteal space of a young gentleman in Linlithgowshire. The tumour had been growing for some time, as the patient had been two or three years in Canada since its first appearance. When seen by him along with Dr Kirk of Bathgate, he was unable to straighten his limb; and there was swelling extending from the middle of the calf to the middle of the thigh. As it was evidently not adherent to the bone, he made a free incision over it, and after a careful and prolonged dissection removed it entirely. He then found that it had pressed so much on the vessels that the sheath was thinned, and the artery and vein, lying side by side, were seen for about four inches flattened and separated. The external popliteal nerve was embraced in the tumour, and had to be carefully dissected out of the groove which they now saw. This explained the pain suffered by the patient. Fortunately there were no strong adhesions. The patient made a good recovery, and five weeks after the operation came a considerable distance to show himself. Microscopic examination showed that the tumour was a soft fibrous sarcoma, with few symptoms of malignancy, except a somewhat disorderly grouping of its cell elements. The long time during which it had been growing was in favour of its not being malignant.

II. *Mr Annandale* showed—(1.) A child on whom he had performed a new operation for aggravated KNOCK-KNEE. The result of the operation had been to completely cure the deformity. (See page 18.)

(2.) A man who had suffered from a COMPOUND DISLOCATION OF THE ASTRAGALUS. The case had been treated by division of the tendo Achillis, and antiseptic dressing. Recovery had taken place, with a movable and useful foot.

(3.) A man aged 42, whose KNEE-JOINT he had excised successfully three months before. The operation was performed on account of acute inflammation of the joint, the result of a sloughing external wound which had opened into the articulation.

(4.) The HEAD OF A FEMUR, and portion of ACETABULUM, excised from a case of hip disease.

(5.) HALF A TONGUE, removed for epithelial disease. The patient operated upon was quite well three weeks after.

(6.) The ASTRAGALUS, and lower end of the TIBIA and FIBULA, excised from a case of ankle-joint disease.

(7.) A GLANDULAR TUMOUR, with cartilaginous structure in its substance, removed from the anterior triangle of the neck.

(8.) A TUMOUR OF THE UPPER JAW, which he had removed, together with the jaw, floor of the orbit, and masseter muscle, which had become involved in the disease; sloughing of the cornea had followed the operation on the affected side.

(9.) A NEW APPARATUS for the treatment of fibrous anchylosis of the elbow-joint.

III. *Mr Chiene* showed a PATIENT suffering from a simple malady, but whose case illustrated the organization of a blood-clot in an open wound. He believed that this was the first systematic attempt to fill a cavity with a blood-clot. The patient suffered from a corn on the heel, which he had removed along with a triangular piece of skin, each side of the triangle being 1½ inches long. He had then cleared out all the tissues down to the os calcis, thus making a cavity half an inch deep. He next applied protective and a gauze dressing before removing the tourniquet, in the hope that blood would ooze from the sides and fill the cavity with a blood-clot. This operation was performed on the 18th of April. Six days after, the cavity was filled with a dark jelly-like substance. On the twelfth day, this clot was of the same colour, but firmer in consistence. On the sixteenth day, it bled when scratched. On the twenty-sixth it was evidently organized and red in colour. Epidermis began to cover it on the thirtieth day; and on the thirty-fourth, it was completely covered and entirely healed, without any contraction. This organized blood-clot was therefore half an inch deep, and like an equilateral triangle, each side being an inch and a quarter in length. It was still a point of clinical interest whether the contraction would ultimately take place. On this point he would satisfy the Society by showing the patient in July. He only wished further to state, that no retentive apparatus had been employed, as he had no proof when he operated that there would be contraction. The case was treated antiseptically.

IV. *Dr Keith* showed two bottles containing twenty-four ounces of RED SERUM AND BLOOD-CLOT drained from the pelvic cavity within forty-eight hours after the removal of an ovarian tumour. He had no doubt but that septicæmia would have resulted if the fluid had been allowed to remain. The operation was severe and tedious, and after tying many vessels, he was compelled to close the wound with some oozing still going on. The tumour removed was also shown. It was very semi-solid, and its attachments to the abdominal wall and pelvis were unusually firm.

V. *Dr Watson* showed—(1.) An UPPER JAW which he had, on the previous day, removed for epithelioma.

The patient had previously suffered from neuralgia of the infraorbital branch of the fifth nerve; afterwards an epitheliomatous growth, which was supposed to have originated in the antrum, appeared on the hard palate. He therefore removed the jaw by an incision from the edge of the eye to the ala of the nose, and then the upper lip, continuing this into the nasal cavity. He then raised the soft parts by a periosteum scraper, and, by means of a narrow saw, cut through the bone obliquely below the orbit, and also at the palatal plate. He then found that the antrum was not involved, and that there was no occasion for interference with the floor of the orbit.

(2.) A SMALL PELLET like a No. 2 shot which he had removed from beneath the eyelid of a patient. While working in a metal manufactory, a damp hook falling into the metal caused a spirt of the molten mass to enter his eye. On examination, Dr Watson found it below the eyelid. The cornea was blanched, but he did not, after removing the foreign body, meddle with the eye, except to perform paracentesis of the anterior chamber, to relieve tension of the aqueous humour.

(3.) An OVARIAN TUMOUR which he had removed in the operating theatre of the Infirmary. The patient had suffered from it for two years, and had previously been under observation in two hospitals. She had left these, according to her own account, because of a suspicion that her case was not understood; but more probably from her habits being found incompatible with the discipline of these institutions. As there was erysipelas rife in the hospital at the time of her admission, he had kept her under observation for a month before performing the operation, and during this time fed her on milk alone. After the operation, she did well for a week, when she suffered from suppression of urine. After the use of vapour-baths and blisters, the secretion was re-established, and in three days she passed fifty ounces of urine in the twenty-four hours. Since that time she had gone on perfectly well and was now convalescent. The pedicle was ligatured by means of Chinese fishing-cord, an animal substance of some kind. Unlike catgut, it did not break, and instead of being rendered a yellowish-brown by carbolic oil, it remained pearly white in colour. What it was, he was unable to say. He had obtained it from the late Professor Miller, who used it to tie hæmorrhoids.

VI. *Mr Gilruth* then read his paper on THE PHYSIOLOGICAL EFFECTS OF SECTION OF THE SPINAL CORD IN LOWER ANIMALS.

The *President* thought that the Society was indebted to Mr Gilruth for the trouble he had taken and the way in which he had brought forward his paper. The subject was a wide one, and hardly fitted for discussion in the Society. He would, however, be glad to hear any remarks on it.

VII. *Dr T. J. Maclagan*, Dundee, then read a paper on the PATHOLOGY OF THE CONTRACTING GRANULAR KIDNEY. He agreed with most pathologists in holding, that that form of Bright's disease, which is characterized by the presence of a small red granular kidney, was not a local disease, but a constitutional one, whose most marked local manifestation was the production of renal mischief. As to the method, however, in which the constitutional produced the local kidney affection, or what was the sequence of the ascertained renal changes, there was a difference of opinion. Dr George Johnson holds that the disease consists essentially and primarily of a disintegration and destruction of the gland-cells which line the convoluted tubes. On the other hand, Dr Dickinson regards hypertrophy of the intertubular fibrous tissue as the essence of the disease; while Sir William Gull and Dr Sutton allege that it is a "hyalin-fibroid" formation in the outer coat of the vessels, the renal ones not being necessarily first involved. While admitting the accuracy and importance of these observations in themselves, he believed that microscopic research alone could not settle which of these was primary or secondary. The disease was an insidious constitutional one, and the above noted changes in the kidney structure could only be noticed when the disease had made considerable progress. Microscopic research, indeed, had only led to diversity of opinion, and he therefore proposed to add to the knowledge of the pathology of this disease by a consideration of the symptoms and changes accompanying its development. From such considerations he had been led to adopt Dr George Johnson's view of the initial mischief, viz., that it was a loss of the gland-cells of the convoluted tubes; and this he believed to be followed by compensatory hyperæmia of the kidney, and ultimately by hypertrophy of the muscular coat of the small arteries. Dr George Johnson, who first described this last change, attributed it to the vessels contracting to curtail the blood-flow. He could not agree with this explanation, as there was instead an increase of the blood-flow at first, in order that more blood might be brought for the remaining gland-cells to perform their extra duties. Now, the loss of the gland-cells would ultimately reach a point when the urea, etc., could not be wholly excreted. They would accumulate and irritate the kidney tissue, and this irritation would ultimately affect their vasomotor centres by increasing their activity, so that contraction of the small arteries, and hypertrophy of their muscular coat, would follow. In regard to the intertubular fibrous tissue, while he differed from Dr G. Johnson, who held that it did not exist at all, he still could not attach to it the exaggerated importance as a primary cause, which Dr Dickinson did. He rather regarded the increase of this tissue as the result of the increased blood-flow already alluded to. Dr Maclagan then went on to show how the redness and contracted state of the kidney, and the increased flow of urine, could not be fully explained by Dr Johnson or Dr Dickinson's views, but were in accordance with his own modification of these. He then alluded to the causes of the cardiac hypertrophy associated with this disease, and indicated what he considered to be its true position in its course. In conclusion, he pointed out at some length that the changes in the small arteries, as pointed out by Sir William Gull and Dr Sutton, resembled what M. Bouchard had described as sclerous arteritis in the minute cerebral arteries.

The President said that he had listened with great pleasure to Dr Maclagan's able communication, and he admired the way in which the subject had been brought forward. He only regretted that it had been read at a season when there were few to discuss it. As to his own views on the pathology of the granular kidney, he was of opinion, that, as in cirrhosis of the liver, there was inflammation or irritation of the fibroid tissue, increased bulk resulting from this, and then contraction. Time prevented a full consideration of these points, but he wished to allude to two points in regard to Dr Maclagan's views. Dr Maclagan put the starting point as a loss of the tubular epithelium. Now, of this there was no proof; indeed, one peculiarity of the urine in the initial stage was its great clearness. In fact, there was no epithelium nor any sediment at all, unless a few waxy casts. In the second place, he could not understand how a loss of cells could lead to hypertrophy of the heart, as the former was only a local lesion, and he did not think that any local lesion could have such an effect. Indeed, in cirrhosis of the liver, where there was a marked diminution in the bulk of the organ, there was no hypertrophy of the heart. Now, the liver was a much larger organ than both kidneys; and therefore, if there were hypertrophy of the heart in the case of such a local lesion of the kidneys, it ought to be still more marked in an analogous affection of the liver. He believed that the hypertrophy of the heart was due to the impure blood and the greater force required to drive it through the small arteries. Further, Dr Maclagan had said that there was no hypertrophy of the heart in the case of waxy kidney or in desquamative nephritis. But these were comparatively acute diseases, and the patient was generally cut off by some other complication, such as inflammation, or diarrhœa in the case of waxy kidney. The granular contracting kidney, however, was chronic, and there was abundance of time for the heart to hypertrophy. In conclusion, he wished again to say how much the Society was indebted to Dr Maclagan for his paper.

Dr Matthews Duncan wished to know how the contraction of the kidney was explained.

The President said that the contraction was similar to what occurred in cirrhosis of the liver or cicatricial tissue.

Dr Maclagan thought that they did not know enough of cirrhosis of the liver to take it as their standpoint in regard to the kidney. He believed that in the granular kidney there was an increase of the fibroid tissue, but not to the extent that Dickinson said. As to the epithelium not being detected in the urine, he thought that this was due to the slowness of the process and the abundance of the secretion. If, however, they could get the sediment of a large quantity, then they would probably find epithelial cells. Looking at the whole question from an abstract point of view, he thought it most probable that the gland-cells, and not the intertubular tissues, would be affected by the condition of the blood which was supposed to give rise to the renal disease. But that could be settled more by balancing cases than by microscopic research. He only wished further to thank the Society for their kind reception of his paper.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXIV.—MEETING VIII.

Wednesday, 14*th April*.—Dr J. MATTHEWS DUNCAN, *President, in the Chair.*

I. *Dr Simpson* exhibited a COMPRESSED FŒTUS—one of male twins. The second twin had been born alive, but suffering from a large spina bifida, and only lived four weeks. He could not find out any cause for the death of the compressed twin. The fœtuses had been developed from separate ova; the placenta of the living twin was of a battledore shape.

II. *Dr Matthews Duncan* exhibited the ILIAC VEINS OF A WOMAN who died of an ovarian tumour, which it had not been thought advisable to remove. The left common iliac vein was obstructed close to the vena cava, and a little below the closed part a decolorized and adherent clot was to be seen. The iliac veins on the right side are open, but below Poupart's ligament there is a clot which plugs up the vessel. The blood from the lower extremities must all have been carried by the saphena and the superficial epigastrics, which were to be seen during life very greatly dilated.

III. *Dr Angus Macdonald* read a paper on A CASE OF PUERPERAL TETANUS, which appeared in the Journal for June, p. 1110.

Dr Stephenson remarked, that the case seemed to him to be hardly one of *puerperal* tetanus, as the patient was up and going about, having apparently fully recovered from her confinement, and such an attack might have come on independently of the labour. As to the septic nature of puerperal blood, and the weakened condition of the patient, he did not see how they could account for the seizure, as tetanus is very rare, and were they sufficient to excite it, it would be more common. He was struck by the force of the argument, that these attacks are caused by congestion of the cephalic nerve centres, and thought they were more properly to be referred to these than to the spinal cord. In children, thrombus of the sinuses was not uncommon, as had been shown by Bouchut; he had met with such a case, and there were many recorded in the French journals under the name of eclampsia; these cases, if better observed, would very likely be really tetanic in character. He thought the connexion between these cases and the one in the paper helped to establish Dr Macdonald's views.

Dr Simpson looked upon the paper as one of great value, and thought Dr Macdonald had quite proved the case to be tetanic, and not eclamptic in character. One essential point of distinction he thought had been overlooked, namely, that in the case just read, the slightest touch or irritation of any kind was sufficient to produce a violent spasm—a condition which is never found in eclampsia. As to causation, he could not look upon it as due to septic influences; there was no proof of there being any source of septic matter, nor any raw surface by which it could have entered. No collection of pus had been found.

Dr Macdonald explained that in using the word septic, he only referred to the general condition of women's blood which obtains after childbirth.

Dr Simpson would like to have seen some reason why the thrombus should have occurred where it did; the thrombus having once occurred, it was easy to understand the congestion and stoppage of the blood in the vessels behind.

Dr Matthews Duncan wished to confirm Dr Macdonald's view of the case. The great merit of the paper was in showing it to be really a case of puerperal tetanus. There could be no doubt that it was tetanic, and not eclamptic. He was struck by the ease with which the tetanic convulsions were produced in this case. The disease, however, seemed closely allied to eclampsia, and this view was supported by the post-mortem appearances, namely, meningeal apoplexy, hæmorrhage into the ventricles, and minute extravasations, which are similar to those found in many fatal cases of eclampsia. He had seen several such examinations. At the same time, the thrombosis of the straight sinus was a peculiarity of this case, and he had neither seen nor read of such a condition being found in eclamptic cases. The congestion and hæmorrhage were the most important features in the case. Dr Macdonald's arguments showed very clearly the distinction between the two sets of symptoms.

Dr Macdonald, in reply, thanked the members who had spoken for the way in which the paper had been received. We owed very much to Ferrier for the way in which he had differentiated the physiology of the corpora quadrigemina, which in this case were intact, and had consequently been able to regulate the tetanic convulsions. He could not assign any cause for the plugging of the vessels.

IV. NOTES ON INTRAUTERINE CRANIOMETRY, by the *President*, which also appeared in the Journal for June, p. 1083.

Dr Simpson thought the subject one of great importance. The method of measuring by the forceps was perhaps the oldest of all. Osiander and others had an index fixed to the handles of the forceps, by which they could judge of the degree of separation of the blades. As regards the determination of the sex of the child, we should remember that, as a rule, the sex was likely to be that of the older parent, if there was any considerable disproportion in age.

Part Fourth.

PERISCOPE.

GROSS ON SYPHILIS IN ITS RELATION TO THE NATIONAL HEALTH.—The following is a short summary of the paper read by Dr Gross before the American Medical Association at Detroit.

The first part of the paper treats of the history of syphilis. He remarks that it has long been his conviction, both from study and reflection, that syphilis has existed as a distinct, independent, and specific disease from the earliest periods of society. There can be little doubt that it is as old as the promiscuous intercourse of the sexes.

With regard to the *prevalence* of syphilis over the globe, no correct estimate can be formed from any data at present before the profession. It is particularly common in China, the East Indies, Southern and Western Africa, Mexico, and South America.

Syphilis is always a common affection among soldiers and sailors. During our late war, from 1861 to 1863, nearly 23,000 cases of the disease occurred among our troops. In the French army, in the single year 1862, there were 11,000 cases out of an active force of 300,000 men; and in the British service during the same period the proportion of cases was still greater.

All attempts made to ascertain the number of prostitutes in the principal cities and countries of the world have signally failed. In London the number of prostitutes, private and public, has been estimated at from 50,000 to 80,000; while in the United Kingdom of Great Britain it is supposed to amount to nearly 400,000.

The *mortality* from syphilis is influenced by various causes, the principal of which may be thus stated:—The constitution of the patient; his habits of life, temperate or intemperate; the nature and amount of his food, whether nutritious and sufficient in quantity; his occupation; the air he breathes, the clothes he wears, the amount of labour he performs, etc. Whatever has a tendency to impair the digestive and assimilative functions augments the dangers of the disease, and lessens the chances of ultimate recovery.

Race exerts an important influence upon the progress and termination of syphilis. The blacks on the western coast of Africa, and the coloured people of this country, are notoriously bad subjects. The Sandwich Islands are in great danger of being depopulated by it. It is an interesting fact, fully settling the question of the unicity of the disease, that the primary affection almost invariably manifests itself in the form of a soft, simple, or multiple sore, and suppurating bubo, furnishing auto-inoculable pus. Hard chancre, especially in women, is almost unknown in the islands.

The author next inquires into the *indestructible* nature of the syphilitic virus. The disease, if left to itself, he says, never wears itself out; its character may be altered or modified, but the poison still lurks in the system, ready to explode upon the slightest deterioration of the general health. It must necessarily follow that a disease, the specific principle of which remains so long in the system, must have many outgrowths, exhibiting themselves in a great variety of forms, often described as so many separate and independent affections. What is called *scrofula*, struma, or tuberculosis, he has long been satisfied is, in the great majority of cases, merely syphilis in its more remote stages. The effects of treatment lend powerful support to the doctrine of consanguinity of scrofula and syphilis.

Dr Gross says, in regard to *treatment*,—all that can be done, even with the aid of the most approved remedies, as the different preparations of iodine and mercury, is to stay for a time the action of syphilis. Thus it follows that the prevention of the disease is a matter of far greater moment than the attempt to cure it after it has been developed. Cold water, simple or medicated with some astringent substance, as alum, sugar of lead, common salt, or chlorinated soda, used judiciously immediately after connexion, generally completely neutralizes or washes away the infectious matter, and thus insures immunity from future mischief. The condom offers but a feeble resistance in the act of copulation against the dangers of infection.

The only remedy for this evil is the licensing of prostitution, a remedy which has worked so well on the continent of Europe and in England, as to deserve to be introduced into this country.

In reflecting on the subject of prostitution, the author is sometimes inclined to believe that it is the normal condition of the human race; or, that the practice is so intimately interwoven with our social system as to form an essential part of it. The great prevalence of syphilis in the French capital, is due in a great degree to the fact that there are upwards of 30,000 private prostitutes, many of whom are affected with the disease, and, as they are never inspected, are so many hot-beds for disseminating the poison; whereas the 6000 registered women are comparatively clean and harmless.

It has been alleged as an objection to this licensing law, mainly on the statement of Mons. Lecour, Chief of Police in Paris, where this system was originated, where it has been longest in vogue, and where it has been carried to the highest degree of perfection, that, instead of diminishing prostitution, it has served to increase it.

Why or how do women become prostitutes? 1. Natural depravity or want of innate moral principle, similar to that which makes a man a thief, a liar, or a drunkard. 2. Uncontrollable sexual passion, similar to that which makes men and boys onanists. 3. Cruel treatment of the parents, driving their daughters from

-home. 4. The wiles of the seducer, by which a girl, under promise of marriage, becomes pregnant, and is afterwards cast off by her family and friends. 5. Poverty, or the impossibility of gaining a livelihood by honest labour. 6. Fondness for dress or show, so common in the female in all ranks of life, that it may be regarded as an inherent principle of her nature. 7. The influence of bad company, often aided by privation and a love of liquor, finery, or sexual enjoyment.

Dr Gross recommends that the enactments for the regulation of prostitution should not be limited to the female sex; but that sailors arriving in port, and soldiers stationed in barracks, should be compelled to undergo thorough inspection before they are permitted to resort to houses of ill-fame.—*Richmond and Louisville Medical Journal*, January.

CONTAGIOUSNESS OF SYPHILIS HEREDITARIA.—A translation of a paper on this subject appears in the *American Journal of Syphilography* for October 1874, by Dr Charles Günzburg, Physician to the Foundling Hospital in Moscow. In that hospital all the children are placed in eighteen departments, eight of which are set apart for only sick children, and one for syphilitic children. As soon as a child in any department shows suspicious symptoms of syphilis, it is brought immediately to the syphilitic department. A table shows the results of observations made on 31 nurses during the years 1868, 1869, and 1870. From this table it is seen that 31 healthy women nursed 120 syphilitic children for 395½ months, and remained entirely unaffected. The above-mentioned children suffered from every variety of syphilis.

Dr Günzburg accounts for the difference in the contagious properties of constitutional and congenital syphilis, by their different mode of origin. Constitutional syphilis is the result of a poison externally received, whose bearer is first the chancre-pus; it is first local, and afterwards reproduces itself in the blood.

In all the cases observed or cited by the upholders of contagion, of infection of the nurse by the nursing child, the latter have suffered from *syphilis constitutionalis acquisita.*

Finally, he says: The syphilis of children which is conveyed to them through their parents, especially from the father (the most frequent case), is *not transmissible.* The syphilis of children arising from infection from the mother, nurse, servant, etc., is, in its capacity to infect, identical with the constitutional syphilis of adults.

IN the *Archives Générales de Médecine* for May and June 1874, appeared two papers by Professor Gosselin and M. Robin, on the relations of Urinary Fever and Ammoniacal Urine.

MM. Gosselin and Robin conducted their investigations with great care and minuteness. Their object was to ascertain whether carbonate of ammonia or some other cause was the direct source of the symptoms in urinary fever; and the conclusion to which they came was, "that carbonate of ammonia plays a rôle in the production of the accidents which follow operations on the urinary passages, but it is not the sole cause of these accidents."

I. First of all MM. Gosselin and Robin tried to ascertain the cause or causes of the decomposition of urine. They investigated Liebig's (chemical), Bouillaud's (nervous), Pasteur's (torulæ), and Gubler's (organic elements acting as ferments) theories; but, whilst rejecting none but that of Pasteur, on the ground that germs could not gain access to the bladder in every case, came to the conclusion that "we know little or nothing (1) of the chemical reactions which go on amongst the complex principles contained in mucous, purulent, or bloody urine; or (2) of the more or less stable ultimate products which result from these numerous reactions."

II. The second point investigated was the effect of an aqueous solution of carbonate of ammonia on animals when injected subcutaneously. Fourteen experiments were performed, and the following results were noted:—A. In large doses: in blood—globules diminished and albuminoids increased; temperature lowered; kidneys always congested; mucous membrane of bladder injected in two cases out of six. B. In small doses: no congestions, etc.; death from local lesions, the result of the injections. The conclusion being, that there is no resemblance between urinary fever and the action of carbonate of ammonia thus administered.

III. The third point investigated was the local and general actions of normal urine. The results come to being:—(1) "Normal acid urine does not produce serious local lesions;" (2) "A very large quantity is necessary to cause death;" (3) "After death very insignificant pathological changes are observed."

IV. The fourth point observed was, the effect of carbonate of ammonia dissolved in normal urine. The results of these experiments are very interesting, and are as follows:—(1) "Fever continuous, and death in a very short time;" (2) "Intense and severe local effects—different from those obtained before in the other experiments;" (3) "Smaller doses necessary." Separately, normal urine and carbonate of ammonia require to be given in large doses to cause death: together, a small dose kills very rapidly, and the toxic power of the mixture depends mostly on the amount of carbonate of ammonia in solution. MM. Gosselin and Robin consider that there is a certain analogy between the symptoms thus produced and those of urinary fever, but think that the resemblance to certain accidents which follow operations on the urinary passages, is more striking.

V. The fifth division of this most interesting paper is devoted to the general appearances of ammoniacal urine.

VI. In the sixth division the local and general actions of ammoniacal urine are discussed. The urine with which the experiments (eight in number) were performed, was taken from a patient with stricture of the urethra and chronic cystitis. The following general conclusions were arrived at:—(1) "Urine spontaneously ammoniacal acts with greater intensity than a more concentrated (artificial) solution;" (2) Ammoniacal urine is intensely poisonous when injected subcutaneously, and its virulence varies according to the amount of carbonate of ammonia it contains; (3) Fever and local lesions are produced—the latter similar to those observed in man when ammoniacal urine is extravasated into the tissues; (4) "The pathological conditions correspond with those which are found after death from urinary fever;" (5) "The toxic effect is greatly increased when the action is induced in contact with air;" (6) "The rapidity with which normal urine, mixed with pus and blood, decomposes in contact with air, explains how febrile accidents occur after operations on the urinary passages, even when the urine is acid before the operation." MM. Gosselin and Robin say, that the two conditions necessary for the production of the worst consequences, are air and the mixture of the urine with pus or blood.

VII. The concluding portion of this most elaborate thesis is devoted to the question of the presence in urine of other poisonous elements besides carbonate of ammonia. MM. Gosselin and Robin state two conclusions which they have come to in the course of their experiments, viz., (1) that fetid urine is more poisonous than non-fetid, *cet. par.*; (2) The 1,000,000th part of a drop of blood from an animal killed by injection of ammoniacal urine, caused the death of another animal in three days, when injected subcutaneously. Moving organisms were discovered in the blood of both these animals.

In the *Gazette des Hôpitaux* for September, there is an interesting case recorded by M. Reliquet, of concretions in the vesiculæ seminalis, which caused extreme pain and obstruction to the seminal flow. Professor Robin, who examined the bodies, describes them as being "opalescent and transparent, with a diameter of two millimetres. Under the microscope their substance is marked with very fine and very short parallel striæ, and very close together." Acetic acid made the striæ disappear, and rendered the bodies quite translucent and apparently homogeneous.

The presence of these bodies was discovered by examination with the finger in the rectum, and a catheter in the urethra. The patient had suffered for two months. The examination and passage of the catheter caused great pain, and thereafter the concretions were passed, the vesiculæ having been apparently stimulated to powerful contraction by the presence of the instrument in the urethra. M. Reliquet says that he has searched in vain for an exactly analagous case; the bodies passed, in the instance he records, being larger and harder than those described by others.

In the *Lyon Medical* for 6th December 1874, there is an interesting paper by M. Fochier, on Capillary Puncture of the

Bladder. The writer is very enthusiastic in favour of the operation; and, starting with the supposition that it never does any harm, and gives almost no pain, and that the urine is seldom so viscid as not to pass easily through the smallest needle, he goes on apparently to the conclusion, that in all or most cases of retention (complete or incomplete) capillary puncture should be preferred to catheterism.

M. Fochier does not record any cases, but only supposes typical cases in which the capillary puncture ought to be performed. Every one might not agree with M. Fochier as to the exact line of treatment indicated, and one might not meet with exactly similar cases in which to employ the puncture. The utility therefore of this method of recommending the procedure is questionable.

M. Fochier's conclusions are as follows:—

1. "When retention is complete or partial, the harmlessness of the capillary puncture forbids catheterism in every case where it (the latter) might be impossible, difficult, dangerous, or very painful." 2. "When it is advisable that the urine should not pass along the urethra, and when the bladder *has risen above the pubes*, puncture should be had recourse to, even though urine should be passing by the urethra."

M. Fochier qualifies this restriction as to the bladder being perceptible above the pubes, by saying that in cases where it cannot be felt, the needle may be passed from above the pubes obliquely downwards towards the small pelvis, or below the pubes, or by the perineum. M. Fochier considers that puncture by the rectum should never be performed.

AGAINST THE TREATMENT OF ULCERS OF THE LEG BY CIRCUMCISION. By E. T. BRUEN, M.D., Resident Physician, Philadelphia Hospital.—In the issue of the *Medical Times* for June 1873, an article appeared, taken from a German journal, stating that chronic, extensive, and otherwise intractable leg-ulcers had been successfully treated by an incision around the circumference of the ulcer down to the deep fascia. If care was taken to prevent union of the cut surfaces, a rapid cure was effected under the use of a simple water-dressing. Two cases were treated in the surgical wards of the Philadelphia Hospital during the past summer; and, thinking that the results might interest some, I shall give their history, as follows. Their perusal will probably indicate why further trial of circumcision was not made.

Charles Garton, æt. 61, admitted to the hospital 21st January 1873. He had a small ulcer situated on the anterior and outer surface of the leg, midway between the ankle and the knee. He was treated with various dressings, but without success, until last June, when it was determined to try circumcision. This was accordingly practised about the 1st of June by my predecessor, with the following results. The tissue included between the line of incision and the ulcer immediately commenced to slough, so that in a few days the ulcer was enlarged about one inch all around; but the mischief did not stop here, for the ulcer continued gradually to spread, in spite of every application which could be suggested. The surface was twice brominized, but, notwithstanding, an abscess formed in the tissues over the ankle-joint, while the man's general health rapidly declined. Another abscess formed in the upper third of the leg, dissecting between the muscles; a third was formed in the calf, and death from septicæmia and exhaustion was feared. Under nourishing diet and suitable treatment, he gradually recovered his usual health; but before the spread of the ulcer was checked it had extended nine inches longitudinally, and five inches, or nearly, around the limb, transversely. The surface has been slowly healing for the past eight weeks, and is now almost entirely well; but it occupied three months to restore him to the condition he was in before the trifling operation.

The other case was in most respects similar to the above.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

CALABAR BEAN.—Dr J. Crichton Browne (*British Medical Journal*, 24th October 1874) records two cases of general paralysis successfully treated by Calabar bean. The dose usually administered was ¼th grain of the extract three times daily.

A very interesting case of traumatic tetanus, occurring in the person of Dr O'Leary, the talented Professor of Materia Medica in the Queen's College, Cork, successfully treated by large doses of Calabar bean, is recorded by Professor Sydney Ringer, in the *Practitioner* for November 1874. The case presents many points of interest, not the least of which is the very large doses of extract of Calabar bean administered. In 86 hours, Dr O'Leary took 140 grains, and of this, 88 grains were taken in 32 hours, that is, 2¾ grains per hour. For a short time he took 4 grains per hour. A case is recorded by Dr Eben Watson, in which even this large dose was exceeded.

The details of a case of traumatic tetanus, unsuccessfully treated with extract of Calabar bean, are given by Professor Spence in the *Lancet* for 2d January.

So far back as 1871, Dr W. Monro pointed out in this Journal the probability of Calabar bean being useful in cholera, on account of the power which Dr Fraser has shown it to possess of expanding the peripheral bloodvessels. Dr Monro now publishes in the *British Medical Journal* (31st October 1874) a series of cases illustrating the use of Calabar bean in other diseases in which these bloodvessels are contracted. He has found the drug to give very satisfactory results in tic douloureux, febricula, bilious remittent fever, and in a case of obstruction of the aortic orifice. Dr Monro is of opinion, that, if the strength of the extract can be relied on, the doses given in the Pharmacopœia are too small for an adult.

CHLORAL IN PUERPERAL ECLAMPSIA.—M. Fanny, in a recent thesis on this subject, speaks of chloral hydrate as being the best treatment for puerperal eclampsia; he states that it is indicated not only when the attacks are manifest, but also when symptoms suggestive of them arise. M. Charrier also, in a recent paper in the *Annales de Gynæcologie*, speaks in favour of this treatment.

PECULIAR EFFECT OF CHLORAL.—Dr Bjornström has noticed that in patients who have an excitable nervous system, chloral hydrate, when taken for any length of time, produces a tendency to congestion in the head, an effect which is developed from slight causes, as from very small quantities of alcoholic drinks. He suggests as an explanation of the circumstance, that chloral diminishes the tone of the vessels, or paralyzes in a certain degree the vaso-motor nerves.—*Schmidt's Jahrbücher der Gesammten Medicin*, Jan. 1875.

THE COMBINED ADMINISTRATION OF CHLORAL, MORPHIA, AND ATROPIA.—Prof. Bartholow of Cincinnati recently read a paper on this subject before the New York Neurological Society (*New York Medical Journal*, January). He finds that the effects of atropia last much longer, and are apparently in no way prevented by chloral. Morphia deepens in every way the effects of chloral. Dr Bartholow found from some experiments on himself, that many of the unpleasant effects of morphia are modified as regards the wakefulness, but not as regards the subsequent nausea, vomiting, vertigo, and constipation. When the two agents are administered conjointly, a much less quantity of chloral is necessary in order to produce sleep. These agents act more favourably when given simultaneously. Chloral causes sleep, morphia relieves pain, and atropia prevents or lessens the depression in the respiratory and cardiac movements caused by the other two, while it contributes to their cerebral effects. The combination is indicated in cases of insomnia caused by pain, in hypochondria, mania, etc.; also in cases of fatty or irritable heart. In cases of muscular spasm, in the cramps of cholera, he has found the combination to afford excellent results, and many cases of spasmodic asthma and hay fever have been benefited by this conjoint administration.

THE ACTION OF PICROTOXINE, AND THE ANTAGONISM BETWEEN IT AND CHLORAL HYDRATE.—In the *British Medical Journal* for March 27, April 3, 10, 17, and 24, Dr J. Crichton Browne has a valuable paper on this subject. The fact that the toxic effects of picrotoxine differ from those of strychnia, in that they are exercised in a greater extent over the cerebral, and to a less extent over the spinal centres, led Dr Browne to anticipate that chloral hydrate would effectually counteract them, as that agent powerfully diminishes the activity of the brain.

Picrotoxine is the proximate principle of cocculus Indicus. Christison says of it, that it is an active poison, producing chiefly giddiness, staggering, tetanic convulsions, and coma. He adds, that nothing is known of its medicinal properties or actions in small doses, more than that it is beneficial as an external application in scabies, ringworm, and porrigo. Taylor intimates that it gives rise to nausea, vomiting, and griping pains, followed by stupor and intoxication; and he describes one of the few recorded cases in which it proved fatal, and in which these symptoms were present, and extended over a period of nineteen days. Dr Glover describes it as a narcotico-acrid poison that acts on the spinal cord, raises the animal temperature, and causes great congestion at the base of the brain. Dr Roeber of Berlin, who experimented with picrotoxine, and whose researches were published in the *Archiv v. Reichert und Du Bois Reymond*, 1869, found that in frogs a comatose condition is first produced by it, and then a series of tetanic spasms, which by-and-by become clonic. He further demonstrated, that during the stage of clonic spasms, the inspirations are greatly exaggerated, so as abnormally to inflate the lungs, and that the heart's action is rendered slow, and the diastole prolonged. He alleges that the occurrence of spasms could not be prevented by the removal of the cerebrum or optic lobes, but that they never appeared after separation of the medulla oblongata from the medulla spinalis. He infers, therefore, that the spasms are dependent on stimulation of the medulla oblongata, and that the slowness and even stoppage of the heart's action, as well as the inflated condition of the lungs of the frog, are caused by this stimulant action affecting the vagus centre.

The following are the general conclusions which Dr Browne considers may be drawn from his investigations:—1. Chloral hydrate is physiologically antagonistic to picrotoxine in rabbits and guinea-pigs, and will, when administered in a suitable and proportionate dose, save life after a fatal dose of picrotoxine.

2. The antagonism of chloral hydrate to picrotoxine in rabbits and guinea-pigs may be exerted so as to save life, even when it is not administered until fifteen or twenty minutes after the fatal dose of picrotoxine.

3. The antagonism of chloral hydrate to picrotoxine is subject to two limitations: *a.* That the dose of picrotoxine may be so large as to kill before the chloral hydrate has time to operate; *b.* That the dose of picrotoxine may be so large that nothing short of a poisonous dose of chloral hydrate would avail to counteract it.

4. Picrotoxine is to a very limited extent antagonistic to chloral

hydrate in rabbits and guinea-pigs, by mitigating the hypnotic effects of the latter upon the brain and higher nervous centres, which it stimulates to activity.

5. The minimum fatal dose of chloral hydrate in the rabbit is 12 grains to each pound of body-weight.

6. Practically no antagonism exists between picrotoxine and chloral hydrate in the cat, nor between strychnia and chloral hydrate.

7. Picrotoxine and chloral hydrate, when administered simultaneously to the cat, cause death by stopping the action of the heart, and not by any destructive or exhausting action upon the supreme nervous centres.

8. Chloral hydrate causes in the cat excitement and restlessness, with motor defects prior to the state of sopor, and its effects upon that animal are protracted to an extraordinary extent.

9. The energy of the action of chloral hydrate, as measured by its minimum fatal dose, is in proportion to the development of the cerebral hemispheres.

THE ERUPTION PRODUCED BY BROMIDE OF POTASSIUM.—Dr Th. Veiel of Cannstadt publishes, in the *Vierteljahreschrift für Dermatologie und Syphilis*, twelve cases. The patients were all young, and the eruption had the character of acne-papules and pustules, sometimes associated with comedones. Dr Veiel finds that the cutaneous eruption does not depend on any constant quantity of bromide of potassium, or the length of its administration, or on the patient's age, sex, or constitution. He is of opinion that the preference for the scalp and thighs is available as a point of diagnosis between it and ordinary acne. He has failed to detect bromine in the pustules, when it was abundant in the urine.

BROMIDE OF POTASSIUM IN THE TREATMENT OF EPILEPSY.—Dr Otto writes on this subject in the *Archiv für Psychiatrie*, vol. v. No. 1. He concludes that it lowers the excitability of the central ganglia and of the peripheral nerves, and by this means assuages the epileptic attacks. The results are due altogether to the bromine salt. To be efficacious, the dose for an adult must be at least 120 grains. When the dose reaches 180 grains daily, great precautions should be taken. Dr Otto thinks that it is best to commence with a full dose at once. In cases in which the cornua ammonis were found to be affected, the bromide of potassium had been most effectual. The brain symptoms induced by bromide of potassium afford as good a guide for lessening the dose of that drug, as the pulse does for moderating the dose of digitalis. Dr Otto does not fear the induction of any permanent psychic lesion from large doses of the bromide. He advises that it should always be administered well diluted with water.

GOA POWDER.—Dr J. F. Da Silva writes to the *Medical Times and Gazette*, 6th March, contending that Goa powder and Araroba or Arariba powder, a remedy popular in Brazil for the treatment of certain cutaneous affections, are identical. The best mode of applying the remedy is as Dr Silva recommends, in the form of ointment —20 to 40 grains of the powder with ten drops of acetic acid to an ounce of lard.

In the *Pharmaceutical Journal* for 13th March is an interesting paper from the pen of Professor Attfield, on the chemical composition of Goa powder. Professor Attfield prefers Mr Kemp's name of "Chrysarobine," as being more appropriate than the synonymous Bahia powder, Goa powder, etc. He suggests that to the glucoside and the bitter principle of chrysarobine may belong a portion of any medicinal activity possessed by chrysarobine when administered internally. In point of quantity, chrysophanic acid is the chief constituent of chrysarobine. According to Schroff, chrysophanic acid exerts a purgative action weaker than that of rhubarb. Rhubarb contains a considerable quantity of chrysophanic acid, and this acid, with some resins and a bitter principle, are considered to be the conjoint source of the therapeutic properties of rhubarb. Professor Attfield suggests that chrysarobine may possibly be destined to be a rival of rhubarb, as well as an external remedy for ringworm.

We may refer to an interesting paper "On the Identity of Goa powder and Aroroba," in the *Pharmaceutical Journal* for 10th April, by Mr E. M. Holmes.

THE ACTION OF VERATRUM VIRIDE UPON THE CIRCULATION.—Drs H. C. Wood and Joseph Bereus have lately been investigating this subject. Veratrum viride contains two alkaloids, veratroidia and veridia. Drs Wood and Bereus found that the direct action of veratroidia was to lower the arterial pressure, and this action depends on the influence of the alkaloid on the heart itself. It would seem that retardation of the pulse by veratroidia is due to a stimulant effect upon the inhibitory nerves of the heart.

The following are conclusions deduced:—The action of veratrum viride upon the circulation is altogether subordinate to its influence upon the respiration. In minute doses it stimulates the cardiac inhibitory nerves or nerve-centres, but when given in sufficiently large doses it finally paralyzes the peripheral inhibitory cardiac nerves.

It exerts some action upon the heart-muscle or the contained ganglia; this action is probably a sedative one, but it is very feeble, and is only distinctly perceptible when the drug is precipitated at once upon the heart, or when the dose given is much above that required to arrest respiration. To kill the heart-muscle very large amounts are required. Upon the vaso-motor system veratroidia acts as a depressant, but its influence is feeble, much less intense than its action upon the pneumogastrics. When artificial respiration is maintained, it can be given in such doses as to paralyze the vasomotor centres.—*Philadelphia Medical Times.*

THERAPEUTICAL ACTION OF VERATROLLA.—In a paper read before the twenty-second annual meeting of the American Pharmaceutical Association, Mr C. L. Mitchell states that the alkaloid *veratrolla* which exists in veratrum viride is a local irritant; an irritant emetic and cathartic; and a powerful nerve and muscle poison, producing death by suspension or paralysis of the muscular substance of the heart. Like the other alkaloids of the same group, it is probably a spinal and motor depressant.

YERBA DEL PERRO.—M. Rabuteau has investigated the action of this new Mexican plant, a specimen of which was sent to him by M. Victor Salet. It belongs to the natural family *Compositæ*, and appears to be highly poisonous, giving rise to symptoms similar to those produced by strychnia, but the convulsions are of a different character. Twelve grains were injected into the veins of a medium-sized dog, and the post-mortem examination revealed congestion of the brain, but not of the spinal cord; the condition of the lungs was normal. The plant causes great dilatation of the pupil.—*Soc. de Biologie*, 5th Dec. 1874.

SALICYLIC ACID.—This substance, which is now attracting so much attention as an antiseptic and disinfectant, has been for some time known to chemists as a constituent of the oil of winter-green (*Gaultheria procumbens*), and of the essential oil of Monotropa Hypopithys, etc. It was not, however, until the publication of Professor Kolbe's paper in the *Journal für Praktische Chemie*, July 1874, that much interest was awakened in the subject.

In the Chemical Section at the recent meeting of the Scientific Congress of Breslau, the exhibition of this new disinfectant formed the chief attraction. It may be made from dry powder of sodium-phenol, by conducting into it dry carbonic anhydride at 170° C. Salicylate of soda is formed, and this is decomposed by hydrochloric acid into sodium chloride and salicylic acid, which is precipitated. A good account of it is given by Dr Squibb, in a paper read by him before the New York Academy of Medicine, and subsequently published in pamphlet form. The acid, bleached or unbleached, occurs in minute broken acicular crystals, giving it the appearance of a granular powder, which is odourless and nearly tasteless, but leaves a sweetish astringent after-taste. It is very slightly soluble in cold water, but very soluble in hot. The presence of neutral salts, as of sodium phosphate, has the power of increasing its solubility in water, three parts of the latter salt causing the solution of one part of the acid in fifty parts of water. It is much more soluble in alcohol and ether than in water. It melts at 125° C., and sublimes at 200° C. It may be used either in the form of powder or in solution. Its advantages over other antiseptics my be thus briefly stated :—

1. It is much more powerful and effective.
2. In quantities necessary for effectiveness, it is wholly devoid of irritant properties.
3. It is as effective against chemical as against vital ferments;

thus it will prevent the production of the volatile oils in mustard and bitter almonds.

4. In effective quantities, it is odourless, almost tasteless, and perfectly harmless.

Dr R. Godeffroy has an interesting paper on the subject of salicylic acid, in the *Zeitschrift des allgemeinen österreichischen Apotheker-Vereines*, April 1875. He states that salicylic acid may be obtained in various ways besides by the method which we have detailed above. It may be prepared by the oxidation of salicin, a glucoside contained in the barks of some species of salix. It may also be got by the oxidation of saligenin, by heating oil of gaultheria with potassium-hydrate, and by decomposing potassium-salicylate by hydrochloric acid. Salicylic acid may be considered to be an oxidation product of benzoic acid, since it contains one atom more of oxygen, thus: $C_7 H_6 O_2 =$ benzoic acid, and $C_7 H_6 O_3 =$ salicylic acid. It differs from its isomers, oxybenzoic acid and paraoxybenzoic acid, by giving a beautiful violet colour with solution of ferric chloride.

From Dr Godeffroy's experiments it would appear that salicylic acid is three times more powerful in its antifermentative action than carbolic acid. The *London Medical Record*, for 26th May and 2d June, contains a full abstract of Professor Thiersch's paper on the substitution of salicylic for carbolic acid as an antiseptic (Volkmann's *Sammlung Klinischer Vorträge*, Nos. 84 and 85). We should not omit to mention, that Dr C. R. C. Tichborne, so far back as 1872, in a paper read before the Medical Society of the College of Physicians, Dublin, described the physiological action of salicylic acid and its general relation to carbolic acid. In a recent communication (*Medical Press*, 5th May), he suggests for medicinal uses a solution of three grains of the acid in an ounce of warm glycerine. The acid remains permanently dissolved in this menstruum.

Part Fifth.

MEDICAL NEWS.

We learn from a private letter from Munich, that Professor Lister has been feted and entertained at a dinner there, under the auspices of Professor Nussbaum. About seventy guests were present, including the Burgomaster, Professors Ziemssen and Ranke, and Dr Halme. The festivities were kept up to a late hour.

Presentation.—A deputation from the inhabitants of Ratho waited on Dr K. N. Macdonald at his residence in Edinburgh, on the 18th June, to present him with a handsome time-piece and a pair of vases to match, as a token of their respect and gratitude to him for his great kindness while residing among them.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

ON THE DIAGNOSIS OF ERECTILE TUMOURS WITHIN THE ORBIT.

SIR,—With this I send a few lines—being remarks on the diagnosis of erectile tumours within the orbit—for which you may perhaps find a place in the Journal.—Sincerely yours,

SOMMERVILLE OLIVER.

EDINBURGH, 14*th June* 1875.

As an aid to the diagnosis of erectile tumour within the orbit, a stethoscope with a cup-shaped extremity, of a size that will fit within or on the rim of the orbit, will, I believe, be found useful occasionally.

Erectile tumour within the orbit cannot readily be examined in the same manner as when situated in some other regions.

Compression of the common carotid artery may cause diminution of the tumour, and therefore, to some extent, of the protrusion of the eye, if exophthalmos coexist (as it certainly will do if the tumour have attained any considerable size), but the reduction in size may not be very appreciable, particularly if there be much chemosis.

Throbbing movement of the eye may be visible, and thrill or pulsation may perhaps be felt with the tips of the fingers, if they can be insinuated far enough between the displaced, or at least misdirected, eye and the orbit to reach the tumour, or it may possibly be felt though the eye intervene; but the risk of injuring the eye itself is a barrier to any effective attempt to compress the tumour with the view of ascertaining whether the blood, of which it largely consists, can be expelled. Though it be true that we frequently meet with "vascular protrusion of the eyeball when there is no disease whatever in the orbit, the seat of it being mostly intracranial, the protrusion of the eyeball passive, and the other distressing symptoms secondary, depending on obstruction to the return of blood through the ophthalmic vein;" and though also true that, in such instances, there may be "fulness of the orbital region," and perhaps "distinct bruit heard extensively in the neighbourhood," yet, in these cases, the exophthalmos is *not* (as a rule) accompanied with misdirection of the eye. On the contrary, the eye is usually only projected forwards. But erectile (or any other) tumour within the orbit must, if it press only on one side of the eyeball, or on one side more than another, cause deviation of the eye in the opposite direction.

The ophthalmoscopic signs are simply such as result from pressure on the globe (if the tumour be limited to the orbit), as well as from direct pressure of the tumour on, and straining of, the optic nerve and ophthalmic vessels.

If, then, in a case of exophthalmos with decided deviation of the eye in any direction, a careful consideration of the history of the case, and all other endeavours to elicit its true character, still leave the surgeon in doubt; and if exploratory puncture be deprecated or deemed unsatisfactory, such a stethoscope as I have mentioned—though I daresay stethoscope is here a misnomer—may, in some instances, assist him; for if a bruit be audible after carefully adjusting the instrument and making it press gently on the point where the tumour is nearest the surface, there will then be little doubt in his mind as to what he has to deal with, if it be granted that "aneurism within the orbit, whether true or false, is almost unknown."

LEIPZIG, 13*th June* 1875.

Dear ——, Thinking you might like to hear about a banquet given here the other day in honour of Professor Lister, I send you an account of it. The dinner was a joint affair of professors, practitioners, and students; there were, I should think, three hundred there altogether, of which some sixty or seventy had come over from Hallé on purpose. The entertainment was held in the Schuzenhaus.

Professor Thiersch started the speechifying by giving us "the guest of the evening;" he referred to the much more elaborate feast that had been given in honour of Professor Lister at Munich, just before, and how impossible it was for poor German professors and students to attempt to compete with the splendour of a corporation dinner, yet that the attraction of this feast was so great owing to the great reputation of their honoured guest that it had been able to induce so many students from Hallé to come over to Leipzig, even though they knew they would probably have to pass the night in "kneiping."

He then proceeded to say that, though from the time of Schwann and Schröder it had been known that the air contained something mischievous to open wounds, nobody had made practical use of this fact till Lister came. His discovery, like all other great ones, has had to pass through the usual three stages: the first, when the world smiles and shakes its head and says, "It's just nonsense;" the second, with a shrug of the shoulders, and a look of contempt, "It's the merest humbug;" and finally, "Oh, that's an old story; we knew that long ago." He next compared it to a fœtus, which cannot develop itself in quiet and stillness, but, surrounded by meddling relations, the one saying, "This arm is too short," another, "This nose is too large," and a third, "This leg is too long,"—must grow up as best it can; yet, notwithstanding, owing to the skill and care of its father, it had grown up to be a strong, healthy, well-formed child, with whom every one was satisfied. He then gave the health of the father of this noble child, the great discoverer of the antiseptic method, Professor Lister.

Professor Lister then replied, in German, requesting them to excuse his shortcomings in the language, and saying there was no place in the whole of Germany where such an honour as he that night received could be more grateful to him; for here it was, especially, in the operating theatre of Professor Thiersch, that the antiseptic method was first scientifically carried out in Germany; and in the neighbourhood of Leipzig, also, at Hallé, Professor Volkmann, in his laboratory, had done much to improve that method. He then referred to the fact that in the hospital here salicylic acid had entirely superseded carbolic, and, speaking of the former, said that he had received great service from it; for, if one leaves carbolic bandages on a wound so long as a week without changing, one finds usually that they are no longer sweet, and that there is considerable irritation of the skin set up, while the addition of a small amount of salicylic acid serves to remove the irritation and to keep the bandages sweet. Whether salicylic acid will take the place of carbolic, further experience alone can show; but as far as he could see, he thought not. From experiments he had made, it seemed to him that salicylic acid did not destroy bacteria so quickly as carbolic, the greater power of being diluted (Verdunstbarkeit) possessed by the latter giving it a great advantage over the former; also the penetrability of carbolic acid through the epidermis enabling it better to purify the skin, though, as far as the bandage is concerned, it is evident that salicylic acid is of great service.

Afterwards, Professor Carus proposed a toast to the University of Edinburgh, which was founded in the same year as that of Leipzig, and in which he had had the honour of living as member for two summers—which had had the good fortune to be founded at a time when science had begun to take à more prominent position, and so had happily remained free from the scholastic disputes and philosophies which weigh down and oppress the more ancient English Universities. He gave them the toast of that University, which had produced so many eminent men, such men as Allison, Laycock, Simpson, Syme, and, last but not least, Lister himself.

The only other speech worth mentioning was by Professor Volkmann, who, seeing Mrs Lister, Mrs Thiersch, and other ladies, in the gallery, rose and said, that in the English House of Commons it had lately become the custom to see strangers in the gallery; now he too saw strangers in the gallery, but, more polite than the House of Commons, he would propose, not that they should be removed, but that with one loud cheer, all present should drink the health of the ladies.

Between the speeches and throughout the course of the evening, songs were sung by a quartet of students, and a band in the gallery played music of various kinds; among others "Bonnie Dundee," "Coming through the Rye," etc. There were also two songs composed by students especially for the occasion, which were sung by the whole mass of students who were present.—Yours, etc.

PUBLICATIONS RECEIVED.

A Few Words on Vivisection. London, 1875.
William Allingham, F.R.C.S.,—The Treatment of Fistula, etc., by the Elastic Ligature. London, 1875.
Azel Ames, jun., M.D.,—Sex in Industry. Boston, 1875.
H. Charlton Bastian, M.D.,—Paralysis from Brain Disease. London, 1875.
L. Duncan Bulkley, M.D.,—Analysis of 1000 Cases of Skin Disease. Louisville, 1875.
Census of Ireland, 1871. Part II. Vital Statistics. Dublin, 1875.
Thomas King Chambers, M.D.,—Manual of Diet in Health and Disease. London, 1875.
Mr Serjeant Cox,—The Province of Psychology. London, 1875.
A. Davidson, M.D.,—On the Sense of Taste, and its relation to Facial Paralysis and Anæsthesia.
Horace Dobell, M.D.,—On Diet and Regimen in Sickness and Health. London, 1875.
John Dougall, M.D.,—The Science of Disinfection. Glasgow, 1875.
Eben. Duncan, M.D.,—Typhoid Fever, its Cause and Prevention. Glasgow, 1875.
J. B. Fonssagrives,—Principes de Thérapeutique Générale. Paris, 1875.
Sampson Gamgee, F.R.S.E.,—Sir Charles Bell and Sir James Simpson. Birmingham, 1875.
George W. Grabham, M.D.,—Remarks on the Origin, Varieties, and Terminations of Idiocy. Earlswood, 1875.
Eccles Haig,—The Potato Disease, and the Curl Disease in Potatoes. London, 1875.
Dr Hallopeau,—Des Paralysies Bulbaires. Paris, 1875.
Dr H. Haussmann,—Parasites des Organes Sexuelles Femelles. Paris, 1875.
Ferdinand Hebra, M.D.,—Diseases of the Skin, vol. iv. London, 1875.
William F. Hutchinson, M.D.,—The Present Status of Electricity in Medicine. Providence, 1875.
Alfred Henry Huth,—The Marriage of Near Kin. London, 1875.
Jahresbericht der Allgemeinen Poliklinik in Wien für 1874. Wien, 1875.
William W. Keen, M.D.,—Sketch of the Early History of Practical Anatomy; and, History of the Philadelphia School of Anatomy. Philadelphia, 1875.
Robert J. Lee, M.D.,—Maternal Impressions; and, The Goulstonian Lectures on Puerperal Fever. London, 1875.
Dr R. Lépine,—Le la Localisation dans les Maladies Cérébrales. Paris, 1875.
Surgeon-General T. Longmore,—Manual of Instructions for Army Surgeons in Testing the Vision in Soldiers. London, 1875.
Alfred L. Loomis, M.D.,—Diseases of the Respiratory Organs, Heart, and Kidneys. New York, 1875.
W. J. Marshall, M.D.,—Modern Spiritualism. Greenock, 1875.
The Medical Press and Homœopathy. London, 1875.
Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques, tome xx. Paris, 1875.
Sir James Paget, Bart.,—Clinical Lectures and Essays. London, 1875.
Louis Pathault, M.D.,—Des Propriétés Physiologiques du Bromure de Camphre. Paris, 1875.
Dr J. Pétavel,—Du Traitement des Varices et des Ulcères Variqueux par la Liqueur Iodotannique. Geneva, 1875.
Proposto intorno la Cura della Lissa detta comunemente Rabbia Canina o Idrofobia. Rome, 1875.
C. E. Reeves, M.D.,—Consumption in Australia. Melbourne, 1874.
Report on Certain Forms of Skin Diseases observed in the Madras Presidency. Madras, 1875.
Guy's Hospital Reports, vol. xx. London, 1875.
St George's Hospital Reports, vol. vii., 1872–74. London, 1875.
St Thomas's Hospital Reports, vol. v. London, 1874.
Sixth Annual Report of the State Board of Health of Massachusetts. Boston, 1875.
Tenth Annual Report of the Sanitary Commissioner with the Government of India. Calcutta, 1874.
Thomas F. Rumbold, M.D.,—Nose, Throat, and Ear; Instruments and Remarks. St Louis, 1875.
Dr Isidore Straus,—Des Contractures. Paris, 1875.
R. W. Taylor, M.D.,—Syphilitic Lesions of the Osseous System in Infants and Young Children. New York, 1875.
J. Thorburn, M.D.,—Suggestions as to the Medicinal Treatment of the Unborn Child. London, 1875.
Edward John Tilt, M.D.,—Health in India for British Women. London, 1875.
Transactions of the Obstetrical Society of London for 1874. London, 1875.
Francis Vacher,—Report on the Sanitary Condition of Birkenhead. Birkenhead, 1875.
Horatio C. Wood, M.D.,—Nature and Mechanism of Fever. Washington, 1875.
David W. Yandell, M.D.,—Valedictory Address to the Medical Graduates of the University of Louisville. Louisville, 1875.
Dr H. von Ziemssen,—Cyclopædia of the Practice of Medicine, vols. i., ii., and iii. London, 1875.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Practice of Medical Jurisprudence.* By H. D. LITTLEJOHN, M.D., F.R.C.S. Ed., Surgeon of Police and Medical Officer of Health for Edinburgh; Lecturer on Medical Jurisprudence and Hygiene, School of Medicine, Edinburgh.

NO. I.—INTRODUCTORY.

IN the present series of papers I propose to treat of the practical departments of Medical Jurisprudence, including the examination of dead bodies at the instance of the authorities and the various reports which are founded on those inspections—a subject of great importance to the practitioner of medicine, who may at any time be called upon to discharge duties of a medico-legal nature.

It cannot be said that at present the student of medicine has any opportunity of becoming practically acquainted with these most important details. He rarely, if ever, enjoys the advantage of witnessing his teacher make a post-mortem examination with all the formalities demanded by our criminal law in a case of suspicious death. And he is never called upon, from notes which he has taken during the dissection, to draw up a medical report, although the first case to which he may be summoned on his settling in practice, may be one demanding a careful dissection and elaborate report. His teacher may be a highly accomplished lecturer, well read in the literature of Medical Jurisprudence, and able to discourse learnedly on the various topics of his course, but his prelections are theoretical; and necessarily so, for the science has not its corresponding practical course like the other great branches of medical study. Anatomy has dissecting rooms; Physiology and Chemistry, laboratories; Botany, gardens; Medicine, Surgery, and Midwifery, dispensaries, hospitals, and museums, in which practical tuition is available, and the student has every opportunity of observing facts for himself in the presence of his teacher, and of testing the value of the lessons of the lecture room.

As it is, the student undergoes an examination in Medical Jurisprudence, founded on his acquaintance with his notes of his teacher's lectures, and possibly with some well-known text-book, and is found duly qualified to practise. Let us follow him into circumstances in which he may be summoned to give evidence in a court of law, and we take for illustration an ordinary case of accident in the public street, which has occurred through the carelessness of the driver of some vehicle, and where the medical man may, from his accidental proximity, be called upon to give his professional assistance. He is, in all probability, unaware of the fact that the case which he has just treated is necessarily made the subject of judicial inquiry, and to his surprise he is waited upon by an officer, who requests a statement as to the condition of the injured party. And here his embarrassment commences: his hospital experience has enabled him to attend judiciously to his patient, but he has never drawn up a medico-legal report; of the structure of such documents he is ignorant, and the statement, which he at last furnishes, may not only be incomplete from his having probably forgotten to note many details regarding the injuries which should be mentioned, but it may fail to supply the public prosecutor with the information which is necessary for the proper management of the case. We knew of an instance of murder, where death was caused by cramming the mouth of an infant with dough, which was represented to the authorities by the faulty wording of the medical report as a case of death resulting from disease. At the time diphtheria as a popular name for a fatal disorder had been lately introduced, and "a doughy mass in the pharynx" (for such was the expression employed by the medical examiners) was considered as a graphic description of this unusual disease. The authorities were of course satisfied with a report which promised them so little trouble and anxiety. When translated, however, into the language of correct description, "the doughy mass in the pharynx" was resolved into "a mass of dough" in that important cavity. The equivoque was accidentally discovered, and at once the officials were put on the alert, and exchanged their apathy for the most diligent investigation. But it was too late: in the detection of the criminal, days and even hours are of the greatest importance, and in the present case fully a week had elapsed since the discovery of the body, and after an ineffectual search the case was abandoned.

Not only may justice be frustrated by inaccurate reports, examples of which from the past history of medical jurisprudence might be quoted in abundance, but, from his ignorance of certain technical expressions, the medical man may cause annoyance to those who administer the law, and at the same time put a fellow-subject to great inconvenience. A short time ago a certificate from a surgeon, sent by a juryman to excuse his non-attendance at our criminal court, was thrown aside as informal, for it had not been couched in the proper phraseology, and omitted those mysterious but very necessary words, "on soul and conscience." The offending juryman was duly fined, and the trouble and delay incurred before the fine was remitted can be easily imagined. But to return to our case of accident. The medical man is required to state in his report whether the injuries received "involve danger to life." Now, what is he to understand by "danger to life"? He has been taught to consider the slightest injuries are occasionally fraught with danger, and he may remember the particulars of cases in which wounds, otherwise trifling, were followed by the most dangerous consequences. Desirous on the one hand of protecting the interests of his patient, and on the other of vindicating his character for sagacious foresight, he may declare that the injury in question is dangerous—meaning thereby the bare possibility of its proving fatal at some stage or other of its progress. The public prosecutor who receives such a report, naturally enough reads it in the light of his official instructions, and at once proceeds to have the deposition of the injured party taken, lest such important evidence should be lost, and he himself exposed to censure for neglecting to take the dying man's testimony. A magistrate has to be summoned on the instant, clerks have to be provided, and the irritation of the legal functionaries may easily be understood at being thus unreasonably put to inconvenience through the misapprehension of the medical attendant. Of course the medical profession would not fail in the circumstances to be reflected on for this comparatively trifling oversight of one of its youngest members.

But other and equally disagreeable results may follow. The person who may be charged as having inflicted the injury is at once taken into custody, and is naturally anxious to regain his liberty, were it only for the purpose of communicating with his friends and his attorney, so as to be able to prepare for his defence. He claims, therefore, the benefit of being admitted to bail. But, unfortunately for him, injuries which are characterized by a legally-qualified practitioner of medicine as "dangerous," are expressly excluded from the list of bailable offences. And until the medical attendant can conscientiously declare that the special danger is past, the party charged must remain in prison. Such a mistake as unintentionally aggravating the character of an injury is by no means of uncommon occurrence; and but lately I became aware of a case of a simple uncomplicated fracture of the fibula, in which a medical man in good practice refused to grant the necessary certificate of freedom from danger until the end of the second week. The power of thus detaining an accused party in custody is rightly vested in the medical profession, and errors no doubt may be committed by over laxity in an estimation of the danger of particular injuries as much as by undue exaggeration of their importance; but it is evidently of much consequence that the lawyer and the medical man should be agreed on the meaning of terms in common use by both.

Again, take a case of ordinary assault, one of daily occurrence before the inferior criminal court. A special aggravation of such a charge is, that it has been attended with effusion of blood, and the libel or indictment is framed accordingly. What is the precise meaning attached by lawyers to this complication? At first sight it may appear easy enough; but mistakes have again and again been made with regard to such a simple phrase. Sir Robert Christison supplies us with a striking illustration:—"Some years ago, on an important trial in the High Court of Justiciary for assault, the public prosecutor attempted to prove that the person assailed had been wounded to the effusion of blood; which is held in law to be an aggravation of guilt in such cases. When the principal medical witness was examined as to the injuries inflicted, he was asked whether any blood had been effused; and he replied that a good deal must have been effused. But he meant that there was effusion of blood under the skin, constituting the contusion he had described; while the counsel and the court at first received his answer as implying that there had been considerable loss of blood from a wound. The latter view was on the point of passing to the jury as a fact, when one of the judges detected the equivoque, and set the matter to rights."[1] Now, all this ambiguity would have been avoided, had this medical witness had the practical acquaintance with the various forms of reports required in cases of assault, which I hold every student should have an opportunity of acquiring during his attendance on a class of Medical Jurisprudence.

Unfortunately at most of our Medical Schools, the subject is looked upon as of comparatively little importance, and generally the youngest and least experienced lecturer is selected to discharge the duties of the chair. Having no subjects for class illustration, being busied otherwise in general practice, and never being called upon by the authorities to conduct the dissection of an important medico-legal case, or to give evidence in a court of law, his lectures lack that practical stamp which alone can commend them to the attention of his audience, and he himself goes through the annual course in a listless and unsatisfactory manner. Is it to be wondered at that our students, when examined in Medical Jurisprudence (in addition to the multiplicity of other subjects of medical study) show merely a superficial acquaintance with the statements of authors, and that too often of an imperfect character? Or that medical evidence is generally distrusted in a court of law, owing to the hesitation and unsatisfactory knowledge displayed by medical men in the witness-box?

I desiderate for Medical Jurisprudence something corresponding to the *clinique* of the hospital, where the teacher could demonstrate to his class the appearances in the more ordinary cases of sudden and violent death, and dictate on the spot an account of the chief appearances, which members of the class should, in rotation, be called upon to expand into a medico-legal report. This report should subsequently be read in open class by the teacher, and criticised. A case of death from drowning, or of suicide from hanging, examined in this manner, and commented on, would, I am prepared to say, leave a more lasting impression on the mind of the student than a course of twenty lectures devoted to the subject of asphyxia. By such a method of tuition a double advantage would be gained, as the lecturer would be enabled to give, within the short three months' session, a much more complete course than he otherwise could have done; for with a few such *cliniques* he could shorten and condense his regular lectures.

---

[1] Monthly Journal of Medical Science, November 1851.

Such opportunities of practical illustration are only available in our large towns, and in connexion with our police and coroners' courts. I have long been of opinion that our lecturers on Medical Jurisprudence should be placed in direct contact with the practice of their science, and, as has been well remarked, "be enabled to preserve a practical bearing alike in their lectures and in their private inquiries." Till this is effected, Medical Jurisprudence will be regarded with little interest by the student, and be looked upon with distaste and aversion by the great body of the profession.

As surgeon of police, I have now for many years made available for class illustration the various cases of injury and death to which I am officially summoned; and to show the rich field for practical tuition that a comparatively quiet city may afford, I here note the principal cases to which the attention of the class has been directed within a limited period, from 10th May to 10th July of the present year:—

Sudden deaths,	20
Suspected poisoning,	2
Deaths from drowning, accidental,	1
„ suffocation,	2
„ hanging, suicidal,	2
„ injury on railway,	1
Infanticide,	1
Cases of ordinary assault,	various.
Case of infantile leucorrhœa,	1
„ rape on child,	1
„ „ deaf and dumb adult,	1
Cases of insanity,	8
„ delirium tremens,	various.

Attendance of class at two trials—
1. Child murder.
2. Murder by blow, causing fracture of skull.

ARTICLE II.—*Record of the Completed History of a Case of Recurrent Tumour.* By JAMES SPENCE, Professor of Surgery in the University of Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 7th July.*)

THE position of that class of growths known as "fibro-plastic" or "recurrent" tumour, as to its vital characters, has been, and indeed still remains, a matter of uncertainty. The question as to whether they should be classified as "simple" or "malignant" is still undecided. Their histological character seems to indicate the former, whilst, on the other hand, the history of most of the cases on record points to the malignancy of their nature.

With reference to this point, the case of Mrs Easton, narrated below, is of peculiar historical interest, inasmuch as it was one of the earliest cases in which the marked tendency to recurrence, without any other feature of malignancy, drew the attention of the profession to this subject. As we now have before us the completed history of this case—extending over the long period of forty years—I think a consideration of all the circumstances may assist us in forming an opinion as to whether this, perhaps the most typical case of recurrent growths on record, should be relegated to the simple or malignant class, or stand apart from both, as a tumour *sui generis*.

Jane Easton first consulted the late Dr Maclagan in the year 1832. At that time she was 22 years of age, and applied for advice in consequence of a tumour of some three years' growth, situated in the left lumbar region, about one inch from the spine. It was about the size of a jargonelle pear, firm, but elastic in consistence, and freely movable. Below the tumour the skin for some little distance was indurated. The tumour, and also the adjoining diseased skin, were removed, and the growth was, on examination, found to present the ordinary characters of a simple fibrous tumour. About a year afterwards, however, a recurrence of the growth took place, in the form of three small tumours, situated in the cicatrix resulting from the former operation. These tumours, together with the scar, were thoroughly removed by Dr Douglas Maclagan in 1834; but again, eighteen months later, the growth for the third time appeared in the same situation as before. After increasing in bulk for a year and a half, this also was removed by Dr D. Maclagan, and was found to possess the same firmness and elasticity, and to present the same semi-transparent pinkish-gray colour, as was noticed in the original tumour.

For a considerable period subsequent to this operation, no further recurrence took place, and it was not until the month of March 1857, *i.e.*, about twenty years after the removal of the third growth, that she again came under treatment. On this occasion, Dr D. Maclagan requested me to see this patient, with a view to the removal of another tumour which had made its appearance in the old cicatrix about a year previously. The tumour was now about 2½ inches long, by about 1½ inches broad at its widest part, and about 1½ inches in depth at its thickest part, slightly elastic to the touch, and somewhat irregular on the surface, its prominent portion presenting a peculiar transparent pinkish appearance.

I removed the tumour and also the cicatrix widely from the surrounding skin; and conceiving that there might be some connexion between its recurrent growth and the existence of neighbouring fibrous tissue, I dissected off a considerable portion of the lumbar fascia subjacent to the tumour and scar. At this time the general health of the patient was excellent, and there was nothing in her complexion, tongue, pulse, or general appearance at all indicative of malignant cachexia. The wound healed well, and I saw her occasionally for some years afterwards; there has, however, been no further recurrence of the tumour in the lumbar region.

The tumour on this occasion was sent to Sir J. Paget and to Dr Haldane, and the structure was found to consist of fibrous tissue, containing nucleated cells of an elongated oval form.

In November 1868, Mrs Easton again came under my care, this time because of a tumour, about the size of half a small melon, which had made its appearance in the right mamma, the nipple of which was slightly retracted. In consistence the tumour was firm, even hard at some parts. No enlargement of the lymphatic glands, either in the axilla or in the subclavian space, could be detected. The patient's general health was good, and beyond the anxiety and nervous depression, occasioned by the existence of another tumour, her appearance was but little altered from what it was in 1857; less so, indeed, than one would have expected the lapse of time to have made in a woman at her period of life. I operated at once, removing the tumour and also the mammary gland. The patient made a good recovery.

On the 27th of August 1870, Mrs Easton again applied to me on account of a second growth in the breast, in the vicinity of, but not connected with, the cicatrix of the last operation. The tumour had been growing for some months, and had now attained the size of a small lemon. The patient's general health was good, and her condition much the same as formerly. On the 31st I removed this tumour, and during her convalescence from the operation, she stated that she had great difficulty in swallowing solids, the nurse informing me at the same time that she had taken nothing but fluid food for some days. I therefore proposed passing the stomach-tube, in order to ascertain whether any organic change had taken place in the œsophagus; this she objected to very much, and the next day she swallowed solid food, and informed me that the difficulty in swallowing had passed away. As these symptoms seemed to have arisen suddenly, and to have passed away as suddenly, I thought, taking into consideration her nervous state, that the difficulty had been spasmodic, and due to hysteria; and, moreover, as she now took her food without difficulty, I did not press for an examination with an instrument. She left the hospital apparently in good health, coming back occasionally for some months afterwards to show herself. The breast continued quite free from any further recurrence of the growths, and both cicatrices remained perfectly sound.

Characters of the Breast Tumours.—"Hard, almost stony, and painful. Axillary glands not enlarged. Section of tumour was concave; its colour dullish white, with yellow spots, and contained a cyst which had smooth vascular walls, and puriform contents. The tumour had in part a well-defined outline, but in part was blended with the surrounding fat and areolar tissues. The cell forms making up the chief part of the tumour were circular or oval, or caudate or irregular stellate, and they lay in an ill-defined trabecular structure."

I heard no more of Mrs Easton until June 1871, when Dr Claud Muirhead called, at the request of Professor Maclagan, to inform me that she had been visiting some friends in the west of Scotland, where, in consequence of catching cold, she had been suffering from broncho-pneumonia and pericarditis. She had with great difficulty been brought back to her own home, where she was then lying in a hopeless condition.

I at once visited her, and found her in a dying state. She had not been able for some time to swallow even fluids, except in very small quantities, and very slowly. I was also informed that a swelling had formed in the armpit, near the scar left by the operation for removal of the last mammary tumour, and that the swelling had softened, burst, and discharged a considerable quantity of matter. There was a large ulcerated aperture left, whose surface had a dirty appearance, as if from want of action. As she was moribund, I could not advise anything beyond nutrient enemata.

She died shortly after my visit.

A post-mortem examination was made by Dr Wyllie, of which the following is the report taken at the time:—

Autopsy by Dr Wyllie.—Body somewhat emaciated; face pale and sallow. Over the right mammary region there was a linear curved cicatrix, five inches long, extending from the junction of the third costal cartilage with the sternum to the inferior margin of the pectoralis major in the axilla. The convexity of the curve was downwards, opposite its outer extremity; an inch and a half lower down was a second curved cicatrix, two and a half inches in length, with its convexity upwards. From the outer end of the longer cicatrix a gaping wound extended into the axilla, measuring three inches in length, and two inches in breadth at its widest part. The bottom and edges of the wound presented a gray phagedenic appearance, and were coated with a dirty grayish green discharge, which, under the microscope, was seen to be made up of a large amount of fatty debris, mixed with degenerated granular pus cells. The tissue forming the base of this wound was *tough and fibrous*, being composed for the most part of connective tissue which under microscopical examination appeared very abundantly nucleated, much more so than ordinary connective tissue; this was especially noticeable after treatment with acetic acid. The nuclei were small and oval in shape.

Above the wound, the lymphatics along the course of the axillary artery were slightly enlarged. On the skin of the back, over the inferior angle of the left scapula, there was a small pedunculated tumour about the size of a filbert. This tumour was simply a hypertrophy of the cutaneous structures, especially the cutis vera; and under the microscope it presented an abundance of common areolar tissue.

Thorax.—On opening the thorax, the outer surface of the pericardium was seen loaded with a considerable deposit of fat. The parietal layer of the pericardium was everywhere adherent to the visceral layer, the adhesions being recent, and easily separable, lymph soft and partially organized.

Heart itself quite healthy.

Left pleural sac contained three pints of clear yellow serum. The pleura itself was dotted all over with numerous small white nodules of a fibrous consistence, varying in size from a millet-seed up to a pea. The microscope showed these to be *formed of fibrous tissue very abundantly nucleated, similar to that before described as forming the base of the axillary wound.*

The left lung was much diminished in size from compression, the lower half of the inferior lobe being especially shrunken, and on section appearing carnified or collapsed, sinking in water, whilst the upper lobe was also much compressed at its lower margin, but emphysematous at the apex and anterior margin. At the root of the lung, the walls of the greater bronchial tubes were much thickened, and the tissues around indurated, this being due to the *presence of an excess of connective tissue.* Right lung and pleura healthy; at the root, however, the larger bronchial tubes presented the same thickening and induration noticed in the left lung.

Tracheal and bronchial mucous membrane congested.

Œsophagus.—About two inches above the cardiac orifices of the stomach was a stricture, with indurated and thickened walls, firm and fibrous on section. Length of the stricture, one inch and a half; indurated wall, half an inch in thickness, reducing the lumen of the passage to half its natural size. Opposite this stricture, the œsophagus and the aorta were bound together by very dense fibrous adhesions. Just above the stricture, and situated anteriorly just below the bifurcation of the trachea, was a small cul-de-sac, about the size of a pea, the fundus of which was bound to the indurated tissue between the bronchial tubes.

The thickening of the œsophageal wall at the point of stricture, when examined under the microscope, showed a simple fibrous structure, no excess of nuclei; in short, nothing but the elements of ordinary connective tissue.

Abdomen.—Stomach healthy, abundance of mucus. In large intestine, numerous hard scybalous masses. Liver congested and fatty, normal weight and size; spleen and kidneys healthy.

Uterus.—In this organ were three fibroid tumours. The most inferior and largest was about the size of an orange; it was attached to the posterior uterine wall from the level of the os internum to the fundus. The remaining two were about the size of an apple and a walnut respectively, and were situated on the top of the first, projecting upwards from the fundus towards the brim of the pelvis. Microscopical examination of these tumours showed them to be simple fibrous growths; and the usual whorled and interlaced arrangement of fibres on section was plainly seen by the naked eye.

Remarks.—I have elsewhere, in contrasting the case of Jane Easton with other similar cases of recurrent fibro-plastic growths, referred to it, as being, so far as regards my experience, the only one which the progress of the case did not mark as malignant; and I may now illustrate this peculiarity by referring to two cases which greatly interested me long before Mrs Easton's case came under my notice. The former of these was under the care of the late Professor Goodsir, who asked me to see the case. The patient, a man of about 35 or 40 years of age, had a tumour about the size of half a lemon—cut longitudinally—situated over the left hypochondriac and epigastric regions of the abdominal parietes. A similar tumour had been removed from the same position, by a surgeon in the country, some fourteen months previously, the resulting scar being now covering the new growth, which was well defined, firm in consistence, and freely movable. The patient said he felt perfectly well, but his general appearance was not very promising; indeed, his anxious expression and sallow complexion, etc., led both Professor Goodsir and myself to form rather an unfavourable prognosis.

Professor Goodsir removed freely the tumour and cicatrix from the surrounding parts; the wound healed rapidly. Microscopic examination exhibited all the characters of a fibro-plastic growth; but in addition, there was also noticed embedded amongst the fibrous structures a small amount of tubercular-looking matter, which showed a few cells of somewhat irregular form.

At the time of the operation, we noticed what appeared to be a small wen on the patient's scalp, about the size of half a small marble, which, in the course of two months, increased to the size of a hen's egg. Professor Goodsir removed this, and it was found to possess the same character as the tumour previously removed from the abdominal walls.

I heard nothing further of this case until a year and a half afterwards, when I saw the late Professor Syme remove another tumour from the epigastric region. This tumour was very irregular in form, and much larger than the former growths. On section, its texture seemed soft and medullary in character, but I am not aware that any microscopical examination was made. At this period the general appearance of the patient was much altered, he being very thin, sallow, and haggard. Within a year I again saw Mr Syme remove a large tumour from the same position, which on section had all the appearance of medullary sarcoma; and I was informed that this patient died some few months later, with all the symptoms of a malignant cachexia.

The other case to which I have alluded was that of a young woman, who applied to me on account of a growth on the outside of the thigh. It had attained a considerable size, but was quite movable and well defined. To the feel it was very like a fibrous growth, but perhaps rather softer. The surface of the tumour was marked by a long linear scar, and on my inquiry as to the cause of this, the patient told me that Professor Syme had removed a similar growth two or three years before. Professor Syme informed me that the former growth was fibrous, and said he had no doubt the case was one of recurrent fibroid tumour. The patient refused positively to undergo another operation (this, I may mention, was before the introduction of chloroform), although she was urged to do so both by Professor Syme and myself. About eighteen months afterwards she sent for me, when I found her in a very exhausted state. The tumour had, by its irritation locally, caused ulceration of the skin, and had almost spontaneously separated *en masse*. The edges of the sore were everted and irritable, the sore itself discharging profusely, giving rise to a most disagreeable odour. As the tumour was now held only by a few shreds of areolar tissue, I cut them through, in the hope that the removal of the source of irritation would allow the large wound to heal. However, the ulceration extended superficially, and also affected the deeper textures, just as a cancerous ulcer does, and the patient gradually sank from exhaustion.

It has always appeared to me that both these cases were merely modifications of medullary sarcoma. From a very early period, indeed, the appearance of the patients and the general symptoms were suspicious, whilst the rapid return and degeneration of the growths themselves, especially accompanied by increasing evidences of a constitutional cachexia, could leave little doubt of their malignancy. In the case of the young woman, the progressive and aggressive character of the ulceration, after the removal of the tumour, seems to me still more decisive.

I have before said that the progress of Jane Easton's case did not mark it as malignant, and hitherto I have spoken of it as being the only case of "simple recurrent tumour" I had met with.

With the whole case and circumstances now before me, the questions arise, How far am I still warranted in holding that opinion? or, Do the ultimate circumstances indicate such a malignant cachexia and secondary involvement of other structures as we meet with in medullary sarcoma or carcinoma?

We had undoubtedly a remarkable tendency to recurrence, and also another feature of malignancy in the appearance of similar growths in other parts than the region primarily affected, *e.g.*, the presence of fibrous growths in the uterus, the small tubercles growing from the pleura, and the organic alterations in the œsophagus. But there are, I think, other conditions and facts which should make us hesitate before we classify the case as malignant. Neither in the lumbar nor yet in the mammary region did the structural characters of the growths vary much. In the lumbar region the successive tumours maintained identically the same structural appearances from first to last, whilst the peculiar texture of the mammary gland would account for the slight difference in that region.

The great feature, however, in Jane Easton's case was the fact that up to the time when she was attacked by the illness to which she succumbed, her general health remained unaffected; and I cannot see any connexion between the attack of pericarditis and broncho-pneumonia, which was the immediate cause of death, and the original disease. It is true, however, that she was suffering from dyspeptic symptoms and difficulty in swallowing prior to her last illness, and this had undoubtedly weakened her somewhat; hence I was rather suspicious as to the state of the œsophagus. The post-mortem examination, however, showed it to be a simple stricture, occasioned by an increase of white fibrous tissue; and there can be little doubt that it must have existed for a long time, and progressed slowly, though, from her dread of an instrument being passed, she seems to have concealed it to the last.

As to the tumours of the uterus, these were found to be the simple fibrous growths so common in that organ, and their existence should, I think, be regarded rather as coincident with than as dependent upon any constitutional condition or malignant tendency.

In conclusion, taking into account all the vital manifestations, I cannot classify this case as malignant; whilst conversely some of the circumstances—such, for instance, as the development of secondary growths in the mamma, axilla, and pleura, and the superabundant development of connective tissue, nucleated in greatly larger amount than usual, in various organs—seem to withdraw it from the simple class. I am, therefore, strongly inclined to consider it a tumour *sui generis*, the type of a class whose peculiarity is the tendency to recurrence without constitutional degeneration.

ARTICLE III.—*Report upon Some Cases of Microcephalic Idiocy and Cretinism.* By W. W. IRELAND, M.D., Medical Superintendent of the Larbert Institution.

IN the *Rivista Clinica di Bologna* there are two articles by Professor Cesare Lombroso, entitled "Clinical and Anthropometrical Studies upon Microcephaly and Cretinism, with their Application to Legal Medicine" (Fasc. 7 Luglio 1873, and Fasc. 11 Novembre 1873), and one by Dr Valenti, entitled "The Cranium and Brain of a Microcephalic Idiot twenty years old" (Fasc. 2 Febbraio 1873).

As microcephaly is by no means common in this country, and as it has of late excited much attention, I have thought it might prove interesting to afford a condensed sketch of the facts given by these two able observers, abridging in some places, and translating where abridgment would be unwarranted.

Lombroso's first case died twelve years ago in the Hospital of Cremona. He was rather tall, and his limbs were well proportioned; but there was atrophy of the testicles, and the beard was wanting at the age of 25. The head was smaller than that of an infant. From some of his habits, he was called the bird-man (l'uomo uccello). He chirped, he leaped on one leg, and before putting himself in motion he stretched out his two arms like wings. He used to hide his head under his armpit, and chirped strongly when frightened or at the sight of a stranger.

He was said to be wanting in touch, taste, and smell, was dirty in his habits, and given to coprophagy. The head was less than that of the ourang-outang or gorilla,[1] having a circumference of 380 millimetres = 15 inches 1 line, and a capacity of 390 grammes. The form was also anomalous. It was oxycephalic, broad at the base, and tapering at the crown, resembling a pyramid, with its vertex corresponding to the middle of the sagittal suture. If a line were drawn from the most salient point of the forehead to cross another thrown out from the fronto-zygomatic suture, it had an angle of 135°, whilst in the average European the angle is about 160°. The angular processes of the frontal bone were very prominent.

---

[1] The capacity of the ourang-outang is 448 for males, 378 for females.

„	of the gorilla	„	500	„	423 „
„	of the chimpanzee	„	417	„	370 „
„	of a newly-born man	„	400	„	360 „
„	of a man 1 month	„	460	„	420 „
„	of a man 1 year	„	900	„	850 „

(*Vogt, Memoires sur les Microcephales*, Geneva, 1867.) But our Giglioli, in his admirable monograph upon the chimpanzee brought by Doria and Beccari, describes a maias ciapping, a variety of ourang, with a cranium of 503 cub. cent., and another of 456 c.c. (*Studi Craniologici*, Genoa, 1872). The cranium of an adult microcephale, studied with singular diligence and zeal by Dr Roberti, had a capacity of 370 c.c., a circumference of 332 = 12 inches 4 lines. That studied so learnedly by Valenti had a circumference of 350 mil., equal to 13 inches 6 lines, and the brain weighed 232 grammes.

The frontal bones themselves were thick, and had a few digitations. The meatus auditorius externus was twice as far forward as in the normal skull. The glenoid fossæ were more converging behind, and less so in front. The carotid foramina were smaller than usual; the molar teeth obliquely inserted instead of vertically. The occipital foramen was carried backwards, and, as noted by Vogt, in his observations on Microcephales, in the sardus pithecus and in the sardus Romanus, the distance from the occipital foramen to the alveolar margin stood as 100 in the first, 95 in the second, and in our microcephale at 92, which is no great difference; but, if we compare the distance of the posterior margin of the foramen to the most salient point of the occiput, we find it 40 in the sardus pithecus, 60 in the Romanus, and 90 in the microcephale; and whilst, as a rule, in man, the length of the base of the cranium is equal to the longitudinal diameter, in our case the difference is from 160 to 140. Tried by the cephalo-orbital index of Mantegazza, this case comes behind the grown-up ourang-outang, and still further behind the young ourang, and at a distance from man as 8 is from 27. All the sutures were open, even the spheno-basilar one, which was found closed in the skull of the grown-up microcephale studied by Vogt and Mantegazza. This still farther weakens the theory of Virchow, who gives so much importance to the closing of the sutures in the production of microcephaly.

I cannot clearly follow the description of the brain, which is much less complete than that of the skull. The frontal lobe looked at in profile seemed to have an irregular margin, and towards the middle line descended with a cleft wide enough to admit two fingers between it and the floor of the skull. The supraciliary lobule is simple, and has no trace of the fissure of Sylvius. The orbital lobe has two gyri on the left side, and three on the right. The posterior lobe is more developed on the right than on the left side, but small on both.

The cerebellum, more developed than usual, was assuredly not covered in any part by the cerebrum, thus losing a character which is not only common to European, but to the human race.

Lombroso gives 55 measurements, some of which are reproduced.

	Metres.		Inches.	Lines.
Bodily height, ...	1·540	=	60	5
External circumference of cranium,	0·380	=	15	1
Internal circumference of cranium,	0·350	=	13	1
External longitudinal diameter, .	0·140	=	5	4
Internal longitudinal diameter, .	0·120	=	4	6
External transverse diameter, .	0·113	=	4	3
Internal transverse diameter,	0·100	=	4	0
Distance of anterior margin of occipital foramen to alveolar margin,	0·092	=	3	5

	Metres.		Inches.	Lines.
Distance of posterior margin of occipital foramen to most prominent point of occiput, . . .	0·030	=	1	1
Distance of the anterior margin of the occipital foramen to the alveolar margin, ...	0·092	=	3	5
Distance of posterior margin of occipital foramen to most prominent point of occiput, . . .	0·030	=	1	1
Distance of the auditory foramen to the frontal nasal suture, . .	0·092	=	3	5
Distance of do. to the external occipital protuberance, . . .	0·082	=	3	1
Cranial capacity,. . . .	0·390			
Facial angle, ...	65°			

The name of the second case was Conti Angelo di Spairago, 19 years of age. He had a brother who was 20, but who looked no older than 15; his other three brothers were healthy, but short of stature. The father was small and cretinous; the mother small, and of feeble intellect; had a great fright during her pregnancy, which brought on tremors, cramp in the limbs, want of appetite, and a feeling of cold in the body. The child was born in a state of apparent asphyxia; and after being brought out of this condition, he was found to have paralysis in the right side. He could not shut the right eyelid (apparently this deficiency never left him), and the food came out of his nostrils when he sucked. Thus there were two factors in his idiocy—microcephaly and cerebral disease. He did not learn to walk till he was 7 years old; and till he was 12, he never made gestures nor pronounced syllables which had any meaning. At 15 he commenced to say "Pa," for father, and "Be," for Isabella, his sister. He was always cowardly, running from boys of 6 years, but was fond of tormenting animals. He used to bury frogs and hens, and sometimes spitted and roasted them while still living. He used to carry on war with the cocks of the neighbourhood, who tried to protect the hens, and he had not always the best of it. When examined, he appeared about the usual stature, 1 metre 50 = 59 inches, but of light weight, 38 kilogrammes, skin fine, and abundance of chestnut hair. The face and forehead, to the angle of the jaw, was covered with down; chest narrow. The thumbs were somewhat smaller, and the great toes somewhat longer, than usual, but movable as in the apes. He had right scrotal hernia. The penis was very small, like an enlarged clitoris, with wide urinary meatus. The testicles were no bigger than beans. The cranium was asymmetrical. The forehead was small, and depressed on the right side, and behind there was a depression on the left occipital bone. The teeth were very irregular, the palate long and sharp. The muscular force, tried by the dynamometer, is not much reduced—75° on the right hand and 70° on the other. Taste is normal, and sensibility less on the right side than on the left. He knows his mother and brothers, imitates military exercises, keeps his own body clean, is passionately fond of music, and has learned a few words about his food, but cannot speak, or even converse by signs. He goes by the name of the rabbit-man (l'uomo coniglio), from his habits of moving the nose and lips, and from being timid and fond of green vegetables, such as salads and cabbage. When he is frightened he stamps with the feet as rabbits do. This seems rather to be a case of paralytic idiocy than of microcephaly.

	Metres		Inches.	Lines.
Bodily height,	1·500	=	59	0
Greatest circumference at cranium,	0·490	=	19	2
Longitudinal curve,	0·300	=	11	6
Transverse curve,	0·300	=	11	6
Breadth of forehead above,	0·070	=	2	6
„ „ below,	0·130	=	5	2
Height of forehead on the right,	0·040	=	1	5
„ „ „ left,	0·030	=	1	2
Longitudinal diameter,	0·168	=	6	2
Biparietal diameter,	0·142	=	5	4
Distance of the auditory meatus from the root of nose on right side,	0·130	=	5	2
Distance of do. on the left,	0·160	=	6	3
Facial angle on the right,	68°			
„ „ on the left,	75°			
Fronto-orbital angle,	140°			

In the third case, Robolino P., 18 years of age, of healthy parents, but had uncles and a grandfather who had goitre. The cranial circumference, 495 millimetres, 19 in. 3 lines; is strong and intelligent; writes and reads well. At the age of 16, had headache, murmuring in the ears, and nausea. He recovered, but a short time afterwards became suddenly immovable, and obstinately silent. Four months after he became unquiet and loquacious, and recovered.

	Metres.		Inches.	Lines.
Height,	1·570	=	61	6
Cranium circumference,	0·495	=	19	2
Occipito-frontal curve,	0·320	=	12	4
Biauricular,	0·290	=	11	3
Longitudinal diameter,	0·175	=	6	6
Biparietal diameter,	0·138	=	5	2
Facial angle,	78°			
Dynameter (kilogrammes),	95			

The fourth case, Martinetti Colomba, had a brother and sister who were some time insane, and the brother was also microcephalic. About the eighth year she suffered from some head disease, and after that was subject to hallucinations, such as that the images of the saints in the churches came down to speak to her. She was somewhat deficient in intelligence, but could work as an attendant in the Asylum, where she died of pneumonia. She had the appearance of a Mongolian, with olive complexion, black hair, thick down on the forehead and chin, and oblique or quadrangular orbits. The upper jaw was more protruding, the lower jaw was less prominent than usual. The posterior clinoid processes were found wanting, and there was a pointed tubercle at the upper extremity of the basilar process. The dura mater was found adherent; the pia mater congested; the convolutions not complicated and atrophied. The left frontal lobe was smaller than the right.

	Metres.		Inches.	Lines.
Height, ...	1·052[1]	=	41	2
External cranium circumference,	0·470	=	18	4
Internal cranium circumference, .	0·450	=	17	6
Longitudinal curve, . . .	0·360	=	14	1
Transverse curve, . . .	0·361	=	14	1
Longitudinal diameter, . .	0·158	=	6	0
Transverse diameter, . . .	0·130	=	5	1
Cephalic index, ...	0·860			
Cranial capacity, ...	0·815 c.c.			
Facial angle, ...	65°			
Fronto-orbital angle, . . .	130°			

The fifth case was called Battista, a foundling 3½ years old, and somewhat small for his age. His forehead, limbs, cheeks, and neck are covered with fine hair, about the length of seven millimetres. The hair of the head is abundant, and of a yellow colour. The head pyramidal, with a retreating forehead, and the angular processes of the temporal bone very marked. The linea arcuata of the temporal is prominent, the face protruding, the incisors distant from one another, the canines double the usual size, and the palate vaulted. The sensibility is normal. He has little affection, but seems to seek the society of others. He uses the following words:—" Pa," for father, bread, and brother; " Ba," for ugly and beautiful; " Bon," for sweet and for fruit; " Da dam," for give me something. He smells food before eating, is passionate, very restless, strong, and active, and extremely fond of leaping, at which he is very expert. He leaps with the spine bent, and hands before him, like an ape. He goes by the name of the monkey (il scimmiin).

	Metres.		Inches.	Lines.
Height of body, ...	0·790	=	31	1
Circumference of head,[2] . .	0·360	=	14	1

---

[1] This woman is said to be of low stature, but 1052 millimetres make her a mere dwarf; probably a misprint for 1520 mill. = 4 feet 11 inches.

[2] The circumference is given 0·036 = 1 inch 3 lines. It must be 0·360, as I have ventured to correct it. The next two figures had also got out of place.

	Metres.		Inches.	Lines.
Longitudinal curve,	0·230	=	9	0
Transverse curve,	0·190	=	7	4
Longitudinal diameter,	0·128	=	4	6
Transverse diameter,	0·100	=	4	0
Distance of auditory meatus to the alveolar margin,	0·087	=	3	2
Distance of do. to the superior occipital protuberance,	0·085			
Facial angle,	72°			
Fronto-orbital angle,	120°			
Weight of body (kilogrammes),	7			

The next three cases were brothers named Cerretti. The father was a rather tall man, of a scrofulous constitution; the teeth and ears ill formed, and the occiput flattened. The mother, delicate and stupid, had the appearance of a cretin, and suffered from continual headache. One of their cousins was insane, and some had been condemned for homicide. They had eight sons, one only of whom was intelligent; the other seven were all idiots, and four of them died from cerebral diseases. The neighbours thought the cause of so many sons being idiots was that the mother kept a monkey. The three microcephales have all a retreating forehead covered in part with down, with an enormous fronto-orbital angle, an obtuse facial angle, and a small oxycephalic head.

The eldest, Nicola, now 24 years of age, is rather tall, with enormous ears. The arms are long, owing to the disproportionate length of the forearm. He has no beard, and seems little sensible to electricity. Begging is his occupation, which he does in a persevering manner; but he could never learn to work. He is tolerably good-natured; but has very weak intelligence, though not without a certain amount of cunning. He exercises over his brothers a species of guardianship; but more for his own advantage than for theirs. He has absolutely nothing resembling the ape about him, save that he stoops in walking like a tamed monkey. Serafino, the second brother, is about 13. He has the superior canines more developed than normal, and distant from the incisors. Of a malicious disposition, he beats without mercy his little brother, to rob him of his bread and money, and only obeys the bigger brother, grinding his teeth. Giovanni is 10 years old. He has an osseous elevation along the sagittal suture. The forehead is covered with hair, or rather down. The upper incisors are larger than usual, and two of the under ones are wanting. The canines are isolated and pointed. He is strong and much more vivacious than the rest; rolls the eyes quickly like a monkey, touches everything with the hand, and imitates gestures. He has learned to sew and to do little messages. Lombroso could find in none of the three that the sense of taste was normal. They said that assafœtida was good, and musk bad. The little one liked quinine, the others did not. "It was curious," says the author, "to see them going together; the biggest one with his head bent on his breast, and his long arms almost touching the ground, thrashing the others if they did not follow him, but letting Serafino beat Giovanni when he wished to keep what he got in alms." They bring the bread or money, which they get, home, but do not give it willingly up to their parents. In winter, having only one coverlet, they fight to have a larger share. Sometimes they wander about four or five days without returning home.

The accompanying Table of Measurements of these microcephalic idiots is reproduced, without any curtailment. I have added the corresponding length in inches as far as they could be approximated.

		CERRETTI.					
		NICOLA.		SERAFINO.		GIOVANNI.	
		Age. 21		Age. 13		Age. 10	
		Metres.	Inches.	Metres.	Inches.	Metres.	Inches.
Height, ...		1·65 =	65	1·35 =	53	1·17 =	46
		Kilogrammes.		Kilogrammes.		Kilogrammes.	
Weight, ...		56·500		34·00		24·00	
		Mill.	About in. ls.	Mill.	About in. ls.	Mill.	About in. ls.
Curves.	Circumference, . .	450 =	17,6	420 =	16,4	410 =	16,2
	Antero-posterior, . .	240 =	9,3	260 =	10,2	250 =	9,6
	Biauricular, . . .	220 =	8,5	210 =	8,2	220 =	8,6
Fore-head.	Breadth, . . .	100 =	3,7	150 =	5,7	150 =	5,7
	Height, . . .	200 =	7,7	300 =	11,7	200 =	7,7
Diameters.	Longitudinal, . .	148 =	5,4	145 =	5,4	140 =	5,4
	Transverse, . . .	122 =	4,6	120 =	4,5	110 =	4,2
	Bimastoid, . . .	120 =	4,5	110 =	4,2	100 =	3,7
	Bizygomatic, . .	130 =	5,1	103 =	4	98 =	3,6
	Fronto-mental, . .	157 =	6	162 =	6,3	130 =	5,1
	Occipito-mental, . .	200 =	7,7	186 =	7,2	175 =	6,7
Ears.	Length, . . .	60 =	2,3	48 =	1,6	54 =	2
	Breadth, . . .	34 =	1,2	30 =	1,1	30 =	1,1
Length of arm, . . .		330 =	13	300 =	11,7	210 =	8.2
,, forearm, . . .		380 =	15	230 =	9	165 =	6,2
,, hands, . . .		190 =	7,4	180 =	7,1	111 =	4,2
,, thigh, . . .		510 =	20	370 =	14,6	290 =	11,3
,, leg below the knee, .		410 =	16	335 =	13,1	240 =	9,3
,, foot, . . .		265 =	10,2	230 =	9	200 =	7,7
,, calf, . . .		320 =	12,6	250 =	9,6	210 =	8,2
Distance of auditory meatus to the chin, . . .		170 =	6,6	130 =	5,1	140 =	5,4
Distance of do. to bregma, .		160 =	6,3	150 =	5,7	145 =	5,4
Distance to root of nose, .		140 =	5,4	110 =	4,2	105 =	4
Distance of the nasal septum from the alveolar margin, .		20 =	0,6	25 =	0,7	15 =	0,5
Fronto orbital angle, . .		115°		122°		100°	
Facial angle, ...		68°		70°		72°	
Force of fist, ...		88		48		40	

The ninth case, Ragni A., was born of cretinous parents, and had a sister a cretin and microcephalic. She could not walk before 6 years of age; after which she did not appear to differ much from other girls. At 20 she had an attack of acute mania, from which she recovered, but became epileptic, and then relapsed into insanity. She died at the age of 30, of phthisis. The circumference of the cranium was 490 millimetres, 19 inches 3 lines, on the outside; and 426 millimetres, 15 inches 5 lines, internally. There was no trace of sutures in the cranium, which was thick and heavy.

OTHER MEASUREMENTS.

Cranial capacity, grammes, . . . 625

	Mill.	Inches.	Lines.
External circumference,[1] . .	480 =	18	7
Internal do., ...	440 =	17	2
Longitudinal curve, . . .	340 =	13	3
Transverse do., . . .	340 =	13	3
Vertical diameter, . . .	113 =	4	3
Biparietal, ...	138 =	5	1
Facial angle, ...	75°		
Cephalic index, ...	81°		

The pithecoid appearances noted in these microcephales were, down scattered over the forehead and body; the size of the ears, the elongation of the limbs and of the phalanges, and their retroflection. The adductability of the thumb in Case 5; the curving of the back in Cases 2, 5, 7, 8; the leaping character of the walk in Cases 2, 5, and 9. On a previous occasion Lombroso has noted a microcephale in whom the forearm was elongated; and another, Gambardella, whose body was covered with black and shining hairs. "In many others there is not the faintest trace of simian appearances or gestures, as in Cases 3, 7, 8; but one may note a species of atavism less problematical, a retrogession towards the inferior human races. Thus Gambardella had the *steatopigia* (fatty pigment or what ?) of the Bosjesman and the black colour of the skin of the negro; and Martinetti had much of the characters of the yellow and black races, a yellow skin, prognathism, the eyes oblique and square, and a retreating chin." "This new species of atavism," says the Professor, "which I may call ethnic atavism, and which we shall also observe in cretins, is a proof to me that we pass through the yellow and black races before obtaining the purity of the Aryan type." In similar fashion, when an Albino or a head of the Aryan type appears amongst the black races, it ought to be a proof that the negro has come through the Aryan type. This spelling and construing of isolated features to find traces of the ape in the human microcephale, seems to me somewhat far-fetched. It is clear Professor Lombroso sought to find analogies, and found a few very equivocal ones. Some peculiarities have no resemblance with any characteristic either of the ape or of the negro, viz., the absence of the testicles in 2 and 7; the malformations in 2, 6, and 8; the want of the incisors, and the want of symmetry in the face in 2.

---

[1] Here again there is confusion in the figures: in the text the circumference is given as 49 cent.

Lombroso remarks, that the assertion of Vogt that microcephales have a pithecoid skull on the crown, and human at the base and face, finds both contradictions and confirmations. "It is true that our microcephales have a retreating forehead, and that the arch of the cranium is more or less flattened; it is true that the development of the angular process of the frontal bone, the atrophy of the orbital surface of the floor of the cranium, the ethmoid beak of the cerebral lobes, the incomplete development of the occipital bone, the position of the occipital foramen more forwards than usual, and the direction of the coronal suture in Case 1; these are appearances truly pithecoid. On the other hand, not only have we in these as in other cases of microcephaly the absence of the median crest of the pitheci, but even the curved temporal bones, so well pronounced in the black races, are wanting."

In making remarks upon the dental abnormalities in his cases, it is singular that Lombroso makes no use of the fact that abnormalities in the shape and position of the teeth are extremely common with congenital idiots who often have heads no smaller than usual. A vaulted palate is noted in three of Lombroso's cases, and this, the most constant accompaniment of congenital idiocy, is not a simian character. Two of the incisors were wanting in No. 7; the direction of the posterior clinoid processes and the osseous spine in the basilar processes in No. 4, have no analogy with the pitheci. None of the anomalies noted recurred with any constancy in these microcephales. Four of them, 6, 7, and 8, and Robolino, could not be called of low stature, and only one had a very thick skull. All the sutures in Case 1 were open, even the spheno-basilar one, which, in the microcephalic cranium described by Vogt and Montegazza, were completely closed.

In Case 4, there was still a trace of the coronal suture, and the squamous suture was open. It was only in Case 9 that there was a complete closure of the sutures, and this was accompanied with great thickening of the cranial bones; but the head was not very small, and the microcephaly was probably not congenital. Valenti has also recorded a case where all the sutures were open, with the exception of the squamous one. This is very different from Baillarger's microcephale, in whom the sutures at the age of four years were not only closed, but the lamdoid and medio-frontal sutures were replaced by a true osseous crest like that in old apes. This, like many other instances, shows that we may have microcephaly with open sutures, which, however, was admitted by Virchow.

Lombroso acknowledges that the mental peculiarities are rather contrary than favourable to Vogt's theory; for no one imagines that a man is descended from birds or rabbits, and it will be remembered that two of his cases had pecularities reminding one of the habits of those animals. He quotes a case mentioned by Maudsley of a small-headed idiot who resembled a goose in many things, and had the cutis anserina; but even the most advanced Darwinians do not claim to be descended from geese, still less from sheep, though Pinel has described another microcephale who affected the habits of that quadruped, among which is mentioned a dislike of flesh and wine. Even the gambols of Battistino, which reminded people of a monkey, having nothing very specific. We often see children that are fond of leaping, and given to imitation, without supposing that they could only have inherited these tastes from an ape who has been dead myriads of years ago.

The author remarks, that Cases 2, 3, 5, and 9 show that cretinism and goitre have something to do with the production of microcephaly. He has seen other instances where cretinism was combined with crania unusually small. He observes, that having measured the heads of 835 prisoners, he found that one-fifth of them had small heads. Of these—

90 had heads 53 cen. = 20 inches 3 lines, in circumference.
42 „ 52
12 „ 50-51 = 19 inches 5 lines to 20 „
1 „ 49 = 19 inches 2 lines „

The author asks, Is not crime in this condition a true pathological phenomenon? In my opinion there is no proof from the mere measurements that even the very smallest circumference, if the head were well proportioned, necessarily implied a brain so small as to exempt its owner from moral responsibility.

It may be here noticed that only four of Lombroso's cases were examples of very small heads; 4 and 9 were above eighteen inches, and Cases 2 and 3 were above nineteen inches in circumference. Case 2 was born to be an idiot independently of the bulk of brain; and in the other three insanity seemed to be a more marked feature than the mental weakness. At the same time it is to be observed that owing to the tapering form of the skull there was more room for the development of the base of the brain than of the vertex, which makes the cranial capacity smaller than would appear from the circumference. But I have already cited[1] the case of a head of a boy only 18 inches in circumference but well proportioned. The boy "was quite as intelligent as could be expected of his age in his circumstances."

In many cases of microcephalic idiocy not only is the brain small, but what is of it is diseased; hence the intellect does not diminish in a fixed ratio with the dimensions of the head.

---

[1] Edinburgh Medical Journal, February 1874.

In a pamphlet[1] written by a countryman of Professor Lombroso, we have an account of a woman with a very small head. She is called Antonia Grandoni, and was born in 1830. She has always had good health; she has her regular periods; "eats, drinks, and sleeps regularly, and shows attachment to those who are kind to her. She has good sight and good hearing, attends to what is said to her, and gives satisfactory answers; she sometimes smiles, but more to do like those around than for hilarity. She sets herself to work like any other girl." Nevertheless, this woman's head is smaller in circumference than all of Lombroso's cases save the first.

She weighed about 66 pounds, and was 22 inches round the waist, and 30 inches round the pelvis. Her height was 4 feet 9 inches; her hair being thin and short, the following measurements could be taken with some exactness:—

	Mill.		Inches.	Lines.
Facial angle, ...	200	=	8	0
Length of the face from the eyebrows to the chin, . . .	110	=	4	3
Distance between the zygomatic arches, ...	120	=	4	6
Fronto-occipital, . . .	200	=	8	0
Biparietal, ...	200	=	8	0
External circumference, . .	380	=	15	0
Antero-posterior, . . .	135	=	5	3
Transverse, ...	105	=	4	1
Line from the sinciput to the base of skull, ...	150	=	6	0

The author gives the measurement of another microcephale called Cioccio:—

	Mill.		Inches.	Lines.
External circumference, . .	340	=	13½	0
Antero-posterior diameter, .	108	=	4	1
Biparietal, ...	98	=	3	7
Line from the sinciput to the base,	92	=	3	5

The difference between the sizes of the two heads is not so great,[2] for in the case of Cioccio the examination was made upon the naked bone, whereas in Grandoni the measurements were of course taken with all the integuments of a living head; but, observes Cardona, "the smallness of the brain of Cioccio induced stupidity, idiocy, deaf muteness—in short, simply animal life; the poverty of the brain of our Grandoni in that small size accorded to it by nature, could admit of a sensibility, an intelligence, and an education, which has not fallen much short of the average of her countrywomen."

It is to be regretted, that in this very curious case the author does not give at better length some description of this woman's mental capacity—a remark which holds good for most cases of microcephales. In general we have more measurements than would be required for a mantua-maker, boot-maker, stay-maker, spectacle-maker, and truss-maker, all at once, but the mental characteristics are passed over in loose and general terms. It is, however, not enough to know that a human being may grow up with a head no bigger than a garden turnip; the interest consists in knowing what mental power he possesses with his fraction of brain.

---

[1] D'una Microcefala, per Filippo Cardona, Milano, 1870.

[2] As will be seen in the sequel, Grandoni's brain was actually smaller than Cioccio's.

(*To be continued.*)

ARTICLE IV.—*Clinical and Pathological Observations on some Cases of Fracture of the Skull and Intracranial Lesions.* By WILLIAM MACEWEN, M.D., F.F.P.S.G., Casualty Surgeon, Glasgow; Surgeon to the Royal Infirmary Dispensary, Glasgow.

OUT of many cases of injury to the brain which have come under my observation, the following are considered worthy of notice.

It may be premised that the post-mortem examinations are not given in detail, the salient points only being noted.

I. *Fracture of the Orbital Plate of the Frontal by a Blow from the Naked Fist. Death.*

On the 15th January 1872, I was asked to see a man who complained of a severe headache after having received a blow on the right eye. He was about 22 years of age, of a robust muscular build and healthy appearance generally. The tissues round the right orbit were discoloured and swollen. The right eyeball was slightly too prominent, its conjunctiva injected, the pupil dilated, and the visual power in abeyance. His aspect was anxious, and his sound eye had that abstracted dreamy appearance which in "head cases" is so often indicative of internal injury. The temperature of the body was much above normal, and his pulse was rapid and irritable. He seemed to have considerable difficulty in moving his left arm and leg.

His friends were told that he was suffering from an injury of the brain, and were apprised of its serious nature. He was to be kept quietly in bed. Purgatives were exhibited, and cold was applied to the head.

Several hours after my visit, he was suddenly seized with a convulsion, and died.

His immediate history was as follows:—On the 13th January he had had a quarrel, when one of his companions, whom he had previously struck, returned the blow with his clenched fist, striking him on the right eye. As was afterwards abundantly verified, there was no weapon used. The assailant had nothing whatever in his hand. After receiving the blow he felt confused, and staggered backwards, but did not fall or strike against anything. In a minute or two he felt "all right," and walked along with one of his friends, a distance of about three hundred yards, to his own home; after reaching which, he sat by the fire and took part in the conversation with his family without making any complaint. He slept that night for some time, but toward morning he awoke with a very severe "headache," and it was then observed, for the first time, that his right "eyelid" was very much discoloured. During the night of the 14th January he got much worse, and I was sent for on the morning of the 15th, when his state was as already described.

Post-mortem.—The post-mortem examination showed that he had sustained a fracture of the right orbital plate of the frontal, a portion of which was driven obliquely upwards into the brain substance. There was a considerable effusion of blood into the right anterior fossa. The blood was deposited both between the skull and the dura mater, and between the latter membrane and the arachnoid. The arachnoid and the pia mater were driven into, and were adherent to, each side of the brain lesion. The vessels on the right anterior portion of the brain were slightly congested, and there were slight effusions of lymph here and there over the same part. The thoracic and abdominal viscera presented a normal appearance, and the body generally was healthy and well developed.

Remarks.—It is often a subject of comment how wonderfully the cavity of the orbit is protected from injury, for the wounds that are inflicted all round the margin of the orbit are very great in proportion to the injuries of the orbit itself. Fractures of the orbital plate have been generally the result of punctured wounds of the orbit; such, for instance, as the prong of a pitchfork. It is a very rare occurrence to find fracture of the skull resulting from a simple blow of the clenched hand, and fracture of the orbital plate of the frontal from such an injury appears to be unique. Bryant states that "a severe blow upon the nose, by driving in the ethmoid bone, may cause fracture of the base of the skull," though he does not mention any cases in support of this. At first sight it seems strange that a large object such as the clenched hand could produce fracture of the orbital plate of the frontal. But it is the habit with many pugilists to elevate one of the knuckles of the fist they strike with, so as to make it much more prominent than the rest; and it can easily be conceived that this elevated knuckle might penetrate the orbital cavity, and come in contact with the anterior fossa of the skull. The orbital plate of the frontal and the cribriform plate of the ethmoid being destitute of diploe, present the thinnest portion of the skull, and offer comparatively little resistance.

II. *Fracture of the Orbital Plate of the Frontal; the only symptom at first being a semi-vacancy in expression and tendency to stare.*

G. F., about 40 years of age, slipped, and fell on the pavement and received a wound on the outside of the right eyebrow, about an inch in length, for the dressing of which he presented himself. The wound penetrated the tissues to the skull, but there was no fracture detected by the finger. There was no bleeding from nose or ears. The pupils were both normal and sensitive to light. There was no conjunctival infiltration. He spoke slowly but distinctly; the slowness in speech, though often accompanying brain injury, might have in this case been due to personal peculiarity. The only thing which arrested the attention was a peculiar semi-vacancy in expression and a tendency to stare. When warned to the effect that he showed symptoms of cerebral injury, he smiled, and answered that he thought it was a mistake, as he felt well. His friends were, however, cautioned; he was advised to go to bed, to remain quiet, and to have some purgative medicine.

Eight hours afterwards I was called hurriedly, and found him in a convulsion, in which he died shortly after.

I then learned that he had, contrary to advice, gone out in the morning, but, feeling ill on the street, had to be carried back, when he "fell into a fit." At this visit the conjunctiva of the right eye was seen to be infiltrated posteriorly.

The post-mortem showed a fracture of the skull running through the right orbital plate of the frontal in an oblique direction from before backward, and from the right side toward the left. There was a considerable non-organized clot of blood extending across and on both sides of the fractured portion between the skull and the dura mater; the other membranes were intact, and there was no brain lesion. There was no other injury, and the body otherwise was healthy.

Remarks.—It is probable that had this man remained quiescent, the termination would not have been so rapid, and it is even possible that it might have been averted altogether. The peculiar vacant stare alluded to, seems in some cases to be due to paralysis of the muscles of the eyeball, in others to pressure on the brain, but from whatever cause is always indicative of mischief. At first there was no conjunctival injection of the right eyeball, *though carefully looked for at the time.* It was found on the second visit. The force which caused the injury was not ascertained further than that he fell on the right side of his face. It is probable that there was little bleeding resulting from the fracture in the first instance, but the excitement of getting up out of bed and going out had been sufficient to cause a renewal of the hæmorrhage, and the pressure and irritation caused thereby sufficed to produce the convulsion. If this were so, it would explain the absence of conjunctival infiltration at first and its presence latterly. These are two other instances illustrative of the "almost invariable fatality" attending fracture of the orbital plate.

III. *Fracture of the Cribriform Plate of the Ethmoid, etc.*

W. A., æt. 32 years, a labourer, came under observation on 23d April 1870, having fallen a distance of 12 feet, landing on his face and arms. He was insensible. His face and brow were much bruised; his nose was flattened, the nasal bones having sustained a comminuted fracture. After remaining an hour in bed, a convulsion took place which implicated the body generally, and was accompanied by a *torrent* of blood from both nostrils, which lasted fully five minutes, and then gradually lessened, and finally subsided in about ten minutes from its commencement. This bore no resemblance to an ordinary bleeding from the nose. Both alæ were distended, and the blood rushed out accompanied by a "gushing" sound. The quantity of blood lost must have been considerable, though it could not be ascertained by measure. Before the convulsion his pupils were markedly dilated, and not sensitive to light; after it, they became contracted and fixed. He remained insensible for two hours, but gradually recovered consciousness, and soon after exhibited control over the voluntary muscles. The eyelids and the brow were bruised and greatly swollen; the conjunctivæ were ecchymosed. There was no bleeding from the ears. As far as could be discovered, there was no diminution of sensation. The testing of the sense of smell was inadvertently omitted. The diagnosis was fracture of the skull, involving the ethmoid.

The nasal bones were elevated, but the nose was not stuffed, lest it should prevent any hæmorrhage which might occur from gaining exit. Purgatives were exhibited, his head shaved, and ice applied. He got light diet, and was kept strictly quiet in bed.

During the first few days he seemed improving, no untoward symptom showing itself. His pulse fell on the second day to 64, and continued at that rate till the 1st May, on the morning of which it was found to have risen to 70. He had not slept well, was irritable, and slight twitchings of the facial muscles exhibited themselves. On the 3d May these symptoms had increased, the twitchings were more general, his sleep was disturbed, and he had a tendency to rave. Pulse 94, throbbing; skin hot and feverish; face suffused.

In spite of treatment, his condition became worse, till the morning of the 6th May, when he was found lying on his side in bed curled up like a ball—thighs flexed on the abdomen, head and shoulders bent forward. He was semi-unconscious, but could be roused. The twitchings were lessened. When asked how he felt, he gave a meaningless grin, and did not speak. His pulse was slightly irregular, over 100, excitable, and feeble. His sensitiveness generally was impaired, but there was no part particularized. The twitchings of the face returned at noon; gradually the whole of the voluntary muscles became involved, and shortly after he took a fit of convulsions, in which he died.

Sectio.—The post-mortem showed that the membranes of the anterior and middle fossæ—especially the former—had been inflamed, and were covered in some parts by flakes of coagulated lymph, and by pus in others. On each side of the falx cerebri there was a collection of blood and pus, after removal of which the crista galli and the cribriform plate of the ethmoid were seen to be shattered. The nasal bones, the nasal process of the superior maxillary, and the turbinated portions of the ethmoid were broken. There was much bruising of the soft parts. The body was otherwise healthy.

IV. *Fracture of the Skull—Injury to Brain, causing Marked Indications on the Pupils.*

Was asked to see a man on 28th September 1873, who had fallen from the top of a 'bus, and had alighted on his head. He was a man of strong, robust, muscular build, about 40 years of age. He was insensible. His breathing was quiet, slow, and irregular. His pulse was irregular, slow, and very weak. Skin and extremities cold. The pupils were not sensitive to light: the left was widely dilated, while the right was markedly contracted. Slight oozing of blood from left ear.

These signs were at the time interpreted as signifying that undue pressure was exercised on the left side of the brain, while the function of the right side was in abeyance, either from shock or from some lesion of the brain-tissue, and further, that there was fracture of the skull.

The man shortly afterwards died.

The post-mortem examination showed a large mass of coagulated blood on the left side of the brain, between the cranium and the dura mater—none outside the dura mater on the right. There was a little serous effusion on the surface of the brain on the left side, while on the right the frontal and middle cerebral lobes were to a great extent bruised, softened, and charged with extravasated blood. On examining the skull, a fracture was found, extending from the centre of the left parietal through the petrous portion of the temporal onward to the left orbital foramen.

This fully accounted for the phenomena exhibited by the pupils, and verified the diagnosis.

CASES OF LATENT DISEASE SIMULATING BRAIN INJURY.

V. *Tumour of the Brain.*

On 23d August 1872, I was asked to see a man who, while at work in a bakehouse, had been pushed by one of his companions, and had fallen on a brick, and immediately after became unconscious.

I found a man about 44 years of age, in an insensible condition, with fixed and contracted pupils, stertorous breathing, feeble pulse, beating in rapid jerks. There was a wound, about two inches in length, on the back part of the head, which exposed the skull. No fracture could be detected by the finger. These symptoms, taken in connexion with his immediate history, pointed to pressure on the brain. Some of his friends who were present stated that he had always been a strong, healthy man. He was sent on a stretcher to the Royal Infirmary, which was at hand, but he never recovered consciousness, and died within twelve hours. The autopsy was performed by Dr Joseph Coats, Pathologist to the Royal Infirmary, who kindly furnished the following details:—

"*Post-mortem*, *24th August* 1872, about 10 A.M.—There was a scalp wound on the posterior aspect of the head, about two inches in length, which crossed obliquely the lambdoidal suture. The wound penetrated the entire soft tissues, but the bone was found to be uninjured. After removal of the dura mater, the surface of the pia mater was seen to be smeared with just a trace of fluid blood on the upper aspect of the anterior lobe, but there was no laceration of the brain-substance anywhere. The surface of the pia mater was generally dry. The vessels of the base were perfectly normal. The lateral ventricles were enormously distended with a perfectly clear fluid. In the substance of the former, and about the level of the anterior part of the optic thalamus, a tumour was found.

"It is of a globular shape,[1] about the size of a small walnut, and projects laterally into both ventricles, but especially into the left. After removal of the septum lucidum, the tumour is seen to be covered on every side by a layer of white brain-substance, which, on being cut into, is seen to be as thin as note-paper. After division of this layer, the tumour itself appears as a yellowish transparent body, smooth on the surface, and apparently very losely connected with the layer of brain-substance on its surface, which gapes distinctly after incision. On incising the tumour itself, a tenacious semi-fluid transparent substance lies evidently contained in a very thin-walled cyst. The fluid which exudes contains numerous cells of various sizes, from that of a white blood-corpuscle to three or four times the diameter of these. Most of the cells, especially the larger ones, contain fat granules, which, in some cases, are sufficiently numerous to give the appearances of compound granular corpuscles. The gelatinous material in which these cells are contained gives a granular precipitate with acetic acid."

Besides the peculiarity of the case pathologically, the circumstances are striking in a forensic aspect. The fall, the wound, the insensibility, and the death, all seemed to be the natural sequence of the push, and so the instigator of that action stood arraigned on a serious charge. But the autopsy revealed a lesion sufficient in itself to cause death, and, as far as appearances were concerned, the scalp wound seemed to be the only consequence of the fall.

---

[1] Dr Coats now speaks of the specimen as it stands before him.

VI. *Tubercle of Brain Membranes, simulating injury to Head.*

A somewhat similar case to the preceding, in a medico-legal aspect, came under observation in the summer of 1873.

A boy about six years of age had been annoying some clerks in an office, and one of them came out and cuffed him on the side of the head with a paper-covered pamphlet, which he held in his hand at the time. This was observed by several adults, who gave evidence to the fact that this was the only way in which the clerk had touched the boy. The pamphlet consisted of twenty-four pages of ordinary paper. The boy however fainted, and had to be carried home, where he recovered for the time, but shortly after became feverish, excited, and finally convulsed, and remained insensible for some hours. I visited him four hours after the assault. He was a delicate-looking boy, who lay in a semi-unconscious muttering condition, and had a strongly-pronounced squint. It was stated that he had vomited several times after the assault. Though the head was minutely examined, there was no indication of a bruise or injury of any description. Turning to the family—three of whom were present at the time—it was seen that all of them bore more or less distinct indications of struma. One brother and sister had bent tibiæ, and the former had besides several gummatous swellings on the hands and fingers. The second brother had an enlarged chain of glands on the right side of the neck, one of which was suppurating. The mother appeared healthy. The father was not seen.

The boy was treated by the family medical attendants. He died in seventy-two hours from the time he became ill.

Sectio.—There was no ecchymosis on the scalp; no injury to the skull. There was considerable serous effusion between the dura mater and the pia mater. The arachnoid was in many places infiltrated with tubercular deposits, especially at the base of the skull, where there were several deposits about the size of a bean. There was no trace of a recent inflammatory action, and nothing which could be attributed directly to the assault. There were no glandular enlargements in the abdomen, and the body was otherwise healthy.

VII. *Meningitis following a Slight Blow on the Head.*

A somewhat analogous case to the one just mentioned came under my observation while Dispensary Surgeon to the Western Infirmary, in the summer of 1874. The patient was a boy about seven years of age, and though stout, was by no means robust. The abdomen was distended, it emitted a dull percussion note, and imparted to the fingers that irregular knotted feeling characteristic of glandular enlargement. The pulse was rapid and irritable. The temperature was high, and the skin imparted a burning feeling to the hand. He lay in his mother's arms in a state of fretful somnolescence, exhibiting great intolerance of light, and consequently keeping his eyelids closed. When they were opened, a tendency to strabismus was detected. His mother said that he vomited very frequently, and that he had diarrhœa.

His mother stated, that as far as she had seen he had been always a healthy boy, till two days before she brought him under observation. On that day he had been playing with a barrow, when the handle of it had struck him in some way on the head, after which he had had several convulsions, and remained afterwards much in the same way as is stated above. There was no appearance of injury about the head, and the blow of the barrow-handle must have been very slight, as it was a slim toy.

The nature of the case, as it appeared to me, was explained to her, and she was instructed to keep him in a darkened quiet room; his bowels to be acted on, and to have only milk to drink. He recovered from this state by continued attention, when he was put on the ordinary treatment for strumous children, and in two months had considerably improved.

In these two last cases it may be considered whether the physical force, which was so slight as to leave no visible impression, was alone sufficient to cause the symptoms described; or, whether it excited the already existing disease to assume a more active form; or, whether the exciting cause might have been brought about by a heightened emotional state, probably fright or fear; or, *lastly*, whether the physical force was quite incidental, though coincident with the assumption of a more aggravated form of already existing disease.

ARTICLE V.—*On the Hydrostatics of the Catheter, and a proposed Modification of its Form.* By ROBERT SOMERVILLE, M.D., Galashiels.

A COMMON experience occurred to me lately. I had occasion to draw off the urine of an old man, the subject of paralysis. The catheter had to be used twice daily. The passage of the instrument was easy enough, but owing to loss of power in the muscular coat of the bladder, the emptying of the viscus was a tedious and disagreeable thing. There was a gush of urine when the catheter entered, but the greater part of the urine was only to be voided by compression of the hypogastric region.

Why this should have been, it is not difficult to see. The patient lay on his back,—the usual position when the catheter is passed. Immediately on the introduction of the instrument, while the bladder was distended, it was quite possible to depress the outer end of the catheter to a level very little if at all higher than the level of its inner end inside the bladder; and it required very little pressure indeed to send the urine through what was, as far as mechanical force is concerned, a level tube. This small amount of pressure the elasticity of the distended organ was able to furnish. But after a certain amount of urine had passed out, one could not, without undue violence, keep the end of the instrument so much depressed, and the urine had several inches to ascend before it could make its exit from the catheter. The paralyzed bladder could not of itself drive the urine up to the height required, and unless forced out by the pressure of the hand on the belly, it ceased to flow. This state of things is not confined to paralytic patients, but there is more or less of it in almost every case of catheterism of the male bladder, when during the operation the man lies on his back; the fact being that in this position more effort is required on the part of the bladder than can reasonably be expected, even of the healthy organ.

When a column of water is of small diameter, we are apt to neglect the pressure it exercises. But it makes no difference whatever, whether the diameter of a column of fluid be great or small. Pressure depends solely on the height of the column, and the small quantity of urine in the catheter offers as much resistance to the contracting force of the bladder as if the instrument, instead of being only one eighth of an inch in diameter, were a whole inch, or twelve inches even. A catheter of ordinary size and shape, when in the bladder of a patient lying on his back, frequently has its external end from four to six inches above the level of the urine in the bladder, the urine in the instrument thereby exercising on the inner surface of the bladder the pressure of a perpendicular column six inches in height. What does this pressure amount to? In calculating it, we may disregard, as insignificant, the difference of the specific gravities of urine and pure water. A column of water, then, thirty feet high exerts a pressure equal to the pressure of the atmosphere, or fifteen pounds to the square inch. A column six inches high, being a sixtieth part of this, will exert one sixtieth part of the pressure, or a quarter of a pound to the square inch. A column four inches in height will give a pressure of $2\frac{2}{3}$ ounces. Hence it follows that the urine in the catheter must exert a pressure on every square inch of the bladder's internal surface of from $2\frac{2}{3}$ ounces to 4 ounces; and it is evident that if the bladder is to empty itself through the catheter, it must more than balance the pressure of the column. So that, to send the urine through the catheter when the external end is from four to six inches above the level of the urine in the bladder, every square inch of the bladder's wall must press on its contents with a force greater than that of $2\frac{2}{3}$ to 4 ounces. What wonder that, even with the help got from the abdominal muscles, a healthy bladder is scarcely equal to this, and an enfeebled organ quite incapable of it?

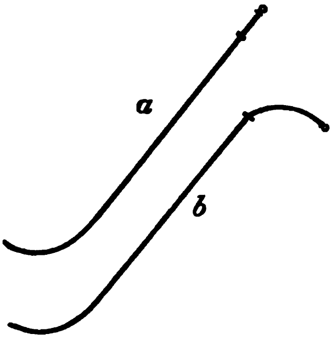
That, in the circumstances referred to, the entire force required to be exercised by the bladder is enormous, can be easily shown. Let us suppose that it contains 20 ounces of urine. This would occupy the bulk of somewhat over 34 cubic inches. The bladder is ovoid in shape, and has therefore a larger surface than if it were perfectly spherical. But a sphere, containing 34 cubic inches, has a diameter of rather more than four lineal inches, and a superficies therefore of upwards of 50 square inches. When the bladder then contains 20 ounces of urine, in order to overcome by its own contractility this pressure of a four-inch column of fluid in the catheter, it would require to exert a force of more than fifty times 2⅔ ounces, or more than eight pounds. If the column were six inches in height, the force required would be more than twelve pounds. It may be objected to this estimate that, as a fact, we do not require, even in the case of the paralytic, to press on the hypogastrium with anything like this force. It is true. But the reason is that the structures behind and surrounding the bladder resist our pressure—exert, in fact, a counter-pressure on those portions of the bladder with which they are in contact, and enable us to effect our purpose with certainly not more than one half of the force we have calculated as necessary, if the bladder were to empty itself by its own contractility. In reference to this, however, it ought to be observed that a pressure of six or eight pounds is effected by the hand with far less effort than would be imagined by any one who has not deliberately experimented with the balance.

The mechanical disadvantage to the bladder, of having to raise the urine four or six inches above its own level, is easily illustrated when the female bladder is being emptied with a flexible catheter. The urine runs freely enough if the nozzle of the catheter be kept down, but the stream is at once arrested if the end of the instrument be raised a few inches.

Is there any method by which, in catheterizing the male bladder, the pressure of the column of urine in the instrument could be done away with? There is. By using a very long flexible catheter, and bending down the outer half of it, so as to make the urine leave the instrument at as low a level as it enters it within the bladder, we balance the column which is obstructing the evacuation with one which facilitates it, and the only thing required of the bladder in this case is to overcome the friction of the urine against the interior of the tube. By bending down the end of the catheter still further, we convert it into a syphon, the long leg of which is external, and, the descending column of urine more than balancing the ascending one, the urine, having once begun to flow, is bound to go on running, until the bladder is entirely empty. The urine no longer requires to be pressed out, it is drawn out.

But flexible catheters are not passed with the same readiness as silver ones, and they are in many respects inconvenient. It would be desirable to have the ordinary metallic catheter used as the short leg of the syphon. This I have succeeded in arranging, by the very simple method of putting on a flexible tube to the extremity of a silver catheter ending with a curve, instead of the straight abrupt extremity that the catheters at present in use have. I have had a catheter of this sort constructed for me by Mr Gardner of Edinburgh, and, after seeing it, I am much surprised that instruments of this form have not come into ordinary use long ere this. Apart altogether from its capability of forming part of a syphon, when used alone without the flexible tube, the urine flows from it into the receiving vessel so much more conveniently than from catheters of the ordinary shape, that I should now be sorry to return to the latter, which almost invariably soil the bedclothes of the patient and the hands of the surgeon. All that is necessary to convert this form of catheter into a syphon, is to slip on to it the end of an indiarubber tube. Such a tube as is attached to a ball-pessary answers well. The tube must be considerably longer than the catheter, in order that it may form the long leg, and the catheter the short leg, of the syphon. When, therefore, the catheter with the tube thus attached to it is introduced into the bladder distended with urine, and the external end of the catheter is bent down towards the patient's bed, the first gush of urine fills both catheter and indiarubber tube, and flows out at the extremity of the latter. We may now allow the catheter to assume the position that the elasticity of the patient's tissues, uninterfered with, assigns to it. The external end of the catheter will spring up, yet the urine will continue to flow; for the syphon having once commenced to act, the emptying of the bladder will go on until the whole of what it contains is drawn off. Since the longer the descending column of fluid is, the more satisfactorily does the

Fig. 1.



In Fig. 1, the ordinary form of catheter is represented by *a*, that ending in the curve by *b*.

Fig. 2.

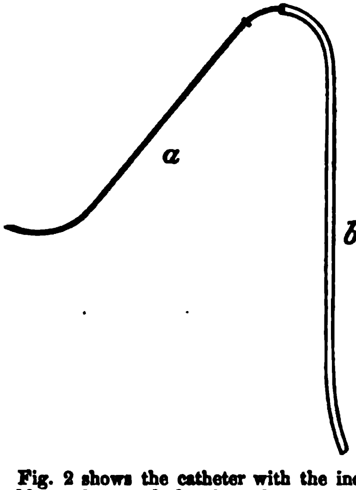


Fig. 2 shows the catheter with the indiarubber tube attached: the catheter *a* being the short leg, and the tube *b* being the long leg of the syphon.

syphon work, I have found it of advantage to carry the tube below the thigh of the patient, and allow the urine to run into a vessel standing at the side of, and at a lower level than, the bed.

For syphoning the bladder, however, it is not necessary to have a catheter specially constructed. In my first experiments, the bend of the syphon was formed by a curved metallic tube slipped on to an ordinary catheter. It worked well enough, provided the junction between the catheter and the tube were air-tight, this being absolutely necessary to the syphon arrangement. A very little cotton wadding, wrapped round the end of the catheter before the tube was slipped on to it, effected this.

This whole matter of the pressure of the urine in the catheter when once looked at, is so simple and obvious that one cannot but have misgivings as to the necessity of asking the attention of the profession to it. On the other hand, its very simplicity may have caused it to be overlooked, and the advantages of the proposed method of using the catheter appear to me to be considerable. They are :—

First, Its convenience and cleanliness. We only need to see that the urine begins to flow. After this, the syphon is self-acting; and provided that the inner end of the instrument remains in the bladder, as long as there is any urine to come, it will be drawn out. And then not a drop of urine need be spilt. These things are important in cases where the catheter requires to be habitually employed.

Secondly, It completely empties the bladder. Even when the bladder has not lost its tone, with the patient on his back, it is difficult to draw off the urine completely with the ordinary form of catheter; and when the muscular coat of the organ is paralyzed, it is almost impossible. Yet it is of great consequence to take away the whole of the urine, when it is alkaline and prone to decomposition.

Thirdly, It reduces the irritation of the mucous membrane by the catheter to the least possible degree. Every one knows the evil effects that in many cases follow the repeated introduction of the catheter. The rubbing of the end of the instrument against the internal surface of the bladder must be serious indeed, when the latter is driven by external manipulation against the unyielding metal, with the force that we have seen to be necessary to raise the urine to the outer end of the ordinary catheter. By doing away with the necessity of external pressure we save the patient from this source of injury.

Fourthly, It avoids entirely the temptation one often has, when the urine has ceased to flow, to raise the patient into an erect or semi-erect position,—a proceeding never devoid of danger with a metallic catheter in the bladder.

ARTICLE VI.—*Note on the Uterine Mucous Membrane of a Woman who died immediately after Menstruation.* By CHARLES E. UNDERHILL, M.B., F.R.C.S.E.

(*Read before the Obstetrical Society of Edinburgh, 23d June.*)

THE woman from whom the preparations on the table were made was aged 38, married, and the mother of five children, the last one having been born some years ago. She died of apoplexy after a debauch, at a time when she had barely finished menstruating. On the 19th March I received the uterus and ovaries of this person from Drs Matthews Duncan and Littlejohn. The uterus measured three inches in length, and the wall was half an inch in thickness at the internal os, rather more at the fundus; it contained a dark-coloured, smooth, somewhat pultaceous substance adhering to its inner surface. The right ovary contains the scars of several corpora lutea of old date, and a very large false one quite recent, which causes a considerable bulging at the left extremity of the ovary; when cut into, the whole ovary is found to measure two inches in length, the corpus luteum is nearly circular, and has a diameter of half an inch; it is filled with black clotted blood; the line which bounds it is thicker at the deeper than at the superficial part, and is in the former locality of a distinctly yellowish colour.

The left ovary, which contains nothing remarkable, is adherent to the left Fallopian tube, and is surrounded by, and embedded in, a mass of fibrous tissue and fat.

The uterus was cut into halves by an incision transversely, and in a vertical direction, just in front of the Fallopian tubes, and each of these parts was cut across the middle; the four parts were left in Müller's fluid for some days, and then transferred to spirit. On making sections of the parts thus hardened, it was found that the superficial layers of the mucous membrane were wanting. On the surface of what remained, and between the upper laminæ of the membrane, was a mass of debris consisting of round and spindle-shaped cells, smooth muscular fibres (or what appeared to be such), blood corpuscles, and gland epithelium. Below these laminæ there appear to be rows of glands alternating with muscular and fibrous structure; that is to say, the glands have their long axes in most cases parallel to the free mucous surface; some, however, were cut across obliquely or transversely. I could find but very few openings upon it in the way described as the normal condition of the membrane. The glandular structures extended for a considerable distance into the substance of the uterine wall, and were lined with regular well-formed cylindrical ephithelium. All the parts were richly supplied with bloodvessels, the larger trunks running in the more external layer of the uterine wall. The glands were found in greater numbers near the fundus than in the region of the os uteri.

I have thought it worth while to make this brief note, and to show these sections to the Society just now, because in a recent paper by Dr John Williams of London, published in the *Obstetrical Journal*, it is stated (March No.. page 765), in speaking of menstruation:—"When hæmorrhage takes place into the membrane, it undergoes rapid disintegration, and becomes entirely removed. It is removed not in pieces, but cell by cell, the process beginning immediately within the inner orifice, and proceeding along the surface towards the fundus, and at the same time towards the muscular wall." And earlier in the same paper (page 606, February No.), he says of a uterus of a woman who had died menstruating—"In this uterus, then, in which menstruation had almost ceased, there existed no mucous membrane. Immediately above the inner orifice, it had been entirely removed, and the muscular wall was exposed in the cavity," etc.

At the same time, he gives drawings which bear a considerable resemblance to my preparations, and the question to be solved is, Whether the muous membrane is absent or not? That the glands, remain is quite evident. It appears to me, that in the presence of glands so numerous, and lined with such well-developed epithelium as those upon the table, we must still claim to have the mucous membrane, in part at least, left behind upon the uterine wall. The difficulty lies in this, that the uterine mucous membrane differs from all other mucous membranes, in that it has no submucous tissue, and the transition from muscular into mucous structure is very gradual, and hard to be defined. If, then, we take glands—and I think we are bound to do so—as forming part and parcel of mucous membrane, we have here a uterus in which menstruation had just ceased, in which the mucous membrane as a whole is certainly not shed during the menstrual period. That the more superficial layers have been thrown off, there is little doubt, as it is well known that the mucous membrane of the uterus is much thicker shortly before or at the commencement of menstruation, than in the ordinary intermenstrual interval; but there still remains behind quite enough of gland-containing membrane to save us from any difficulty in understanding the restoration of the mucous membrane to its full size before another menstrual epoch. I did not find any part of the wall which I examined destitute of gland structures, though they were certainly in much greater abundance near the fundus than at the internal os.

While I cannot endorse Dr Williams's views as to the shedding of the entire mucous membrane during menstruation, with the result of leaving a bare muscular surface behind, his paper is one of value for the careful comparison he gives of a number of uteri in the various stages of menstrual epoch and intermenstrual interval, and the way in which he traces the gradual thickening of the membrane at the approach of menstruation. I have put this communication in the form of a short note just now, but hope at some future time, as opportunity offers, to continue the investigation of the subject.

ARTICLE VII.—*On the Administration of Opium.* By FRANCIS W. MOINET, M.D., F.R.C.P. Ed., Lecturer on Materia Medica, Surgeons' Hall, Edinburgh.

As I have, curiously enough, during the last few weeks come across three cases of opium-eating, two males and one female, one or two points connected with their history appear to me worth drawing the attention of the profession to. I may first premise, that I inquired carefully into the particulars, and can give them full credit; all the information being afforded willingly, two of the three cases having come under treatment to break them off the habit. In two, the habit was acquired in hospitals in which they were patients, one for some uterine affection, the other for liver complaint. In both cases, opium, or one of its preparations, was prescribed nightly for some time, as a sleeping draught; in consequence of which, although the necessity no longer continued on dismissal from hospital, as they were discharged cured, they continued the practice, and have continued it up till now, one for thirty, the other for thirty-five years. Before admission to hospital, neither had ever taken opium to their knowledge. In the third case, the patient, while studying at college, had been recommended to take it by a medical student for some dyspeptic or nervous symptoms, and by so doing he acquired the habit. I have noted these cases, not with the least intention, because I could not, to impute blame to the prescribers, because the mere fact that they were treated in hospital is proof enough that it was done advisedly; but what I wish to say, and with which many medical men will surely agree, is, that when opium is given for a length of time for the relief of pain or to procure sleep, it does, in many instances, especially in some temperments, lead to the habit of opium-eating —a habit which is much more common among all classes than at one time I thought, but which is frequently so carefully concealed that in many cases the druggist who dispenses it may alone have his suspicions roused,—a habit, however, which in its results is almost as degrading, both to the moral and bodily condition of its votary, as alcohol is to the drunkard; and in some, the one appears to lead to the other, opium being taken to allay nervousness, or to induce sleep. This leads me to say that I think there are many cases of chronic disease, or disease in which sleeplessness is a prominent symptom, in which opium is frequently prescribed, without, perhaps, any thought of this danger supervening, and which has led me to believe and practise, that it is advisable not to give opium continuously for any length of time in those cases, unless in painful and incurable diseases, as cancer, etc., especially if the patient is of a nervous temperament. There is no doubt that pain or sleeplessness would more frequently have to be endured, but other remedies might be substituted which would in part, although not entirely, take its place. And if we consider that it would save some, more perhaps than many are aware of, from contracting such a habit, I think that at least it would be advisable to consider this danger, and bear it in mind when we are called upon to treat such cases, and believe opium to be indicated; a danger which most of the readers of this Journal will know from their own experience not to be a fanciful one.

Medical men are nowadays occasionally assailed with reproach for prescribing stimulants rashly and unnecessarily, and so encouraging a taste for them; but the public are already beginning to find out that, as a rule, if individuals want stimulants, they do not wait to get the sanction of their medical attendant, although they may and do sometimes use his name as an excuse.

But it is otherwise with those whom I have mentioned, who have not known the potency of the drug, at least personally, until it was professionally administered, and who in all likelihood would not have known it unless so ordered. And this is generally the rule, I think, that the majority of habitual opium-eaters have in the first instance acquired the taste for it after having been ordered it by a medical man; not that I think it by any means a reproach to us, or that we should be afraid to use it on account of the fact that some ill-regulated people will abuse the drug to their own hurt, but for the reason I have mentioned; and in view of this danger, I venture to say that this ought to be borne in mind when we administer opium in these cases, lest we might be the innocent cause of setting the spark to the fire that may only be extinguished with life.

As regards the treatment of those who have acquired this habit, and who, recognising its evil effects, wish to leave it off—because unless they themselves wish it, and submit voluntarily, unless in hospital practice, treatment is vain—the best plan undoubtedly is to drop it altogether, as I have found that temporizing treatment, as bitter solutions, etc., which have been recommended, are useless; because, although the taste may deceive them, the after effects are wanting, by which alone they judge of the strength of the dose. Occasionally, however, a draught of bromide of potassium, thirty grains, alone or combined with five or ten grains of chloral, may be given at bed-time. But I think it is perhaps better to abstain altogether from the administration of any drug to procure sleep, as it is apt to keep up the craving. In some, however, after the opium has been stopped for a week or ten days, they get into a very violent and excited condition, almost maniacal. When these symptoms supervene, the best remedy is a full opiate, which usually is followed by a sound and much-needed refreshing sleep, and from which the patient awakes composed and comfortable; and it does not appear to re-excite the appetite. This may have to be repeated at a longer interval, seldom more frequently; if it had, I should then be suspicious of feigning.

ARTICLE VIII.—*On the Mechanical Means of Washing out the Stomach.* By HOLLAND J. COTTON, M.B., etc., House Physician to the Royal Infirmary, Edinburgh.

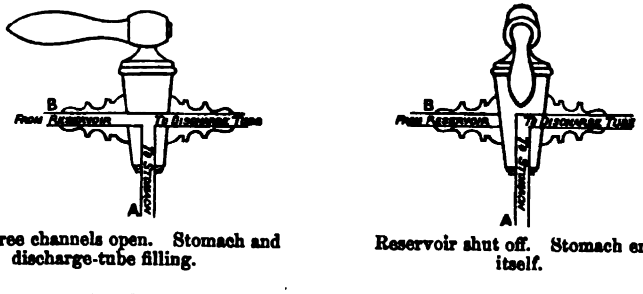
DURING the past summer session, there has been under the care of Dr George W. Balfour, Physician to the Royal Infirmary, Edinburgh, a patient suffering from dyspepsia and sarcinous vomiting, who has afforded ample opportunities for discovering the easiest and most effectual way of washing out the stomach—a mode of treatment which was introduced into this country chiefly by Dr Affleck of this city.

The cause of the patient's malady having been found to be due to dilatation of the stomach, and to fermentation of the ingesta consequent thereon, Dr Balfour, in addition to internal remedies, ordered that his stomach should be washed out every other day with a weak alkaline fluid. Now, although the stomach-pump may be considered a safe enough instrument in the hands of a careful operator, yet its use is occasionally accompanied by untoward results on account of the force such a powerful instrument is capable of exerting.

In order to avoid any such danger in this case, the instrument-maker was instructed to make a syphon apparatus, such as was devised by Dr Rosenthal (vide *Berliner Klinische Wochenschrift*, 13th June 1870). Essentially this consists of a three-way stopcock, of which one is connected by tubing with a reservoir of fluid, placed high above the patient's head, another with an ordinary stomach-tube, and the third with a discharge-tube. Then, if the stopcock be made according to the diagrams, on turning the handle from A to B, all three channels are opened; but as the fluid prefers to flow straight on into the discharge-tube rather than at right angles into the stomach, it is generally necessary to constrict the lower extremity of the discharge-tube with the finger until sufficient fluid have entered the stomach. The handle is then turned back to A

Diagrams of Stopcock devised by Rosenthal for Syphon Apparatus.

Fig. 1. Fig. 2.



All three channels open. Stomach and discharge-tube filling.

Reservoir shut off. Stomach empties itself.

This shuts off the supply from above, and at once the fluid flows freely out of the stomach, on the principle of a syphon, for the discharge-tube is made considerably longer than the stomach-tube.

However simple and ingenious this apparatus may be, I soon found by experience that the thick and fetid matter contained in this man's stomach refused to be drawn up, or if it were, it only served to block the valves of the stopcock and arrest the flow. Consequently, the stomach was never completely emptied, and the patient remained subject to pain and vomiting. A simple procedure, however, remedies this serious defect, and, indeed, renders the use of any apparatus whatever in performing the operation unnecessary, except as a convenience; for by merely passing a stomach-tube, and pouring in the fluid, and then placing the patient across a high stool, his abdomen pressing on the seat and his head down, the fluid at once rushes out of the tube, bringing with it a large amount of thick tenacious matter, which it is almost impossible otherwise to expel. For a period of three weeks my patient went through this performance, and experienced nothing but benefit therefrom. He was about forty years of age, and very intelligent, so that he soon learned to pass the tube himself, although considerable difficulty was experienced at first. He was much benefited by the frequent irrigation, but as he has been suffering for more than seven years, some time must elapse before a cure can be expected, and consequently he was sent home, with instructions to wash out his stomach with the apparatus whenever he complained of pain or flatulence. But where a three-way stopcock is not procurable, the stomach can still be washed out on the syphon principle. Having passed a stomach-tube, one end of a long piece of tubing, which must be previously filled with fluid, should be attached to it. This should then be held above the patient's head, and the stomach filled by pouring in the fluid at its upper end. While still the whole length of tubing is full, it should be lowered and allowed to depend from the patient's mouth, when at once the current changes in direction, and the stomach empties itself.

This method, combined with partially inverting the patient, as before mentioned, at the end of each sitting, in order to evacuate the stomach of its thick tenacious contents, works well and efficiently. It would appear then, that where this operation is called for frequently, and where a medical man cannot be in constant attendance, it can be satisfactorily performed by the patient himself, with the aid of another, without risk, and yet as efficiently as by the stomach-pump.

ARTICLE IX.—*The Toxical Properties of Lolium Temulentum and Lolium Linicola.* By GEORGE FLEMING, M.R.C.V.S., F.R.G.S., Royal Engineers.

THE botanical order *Gramineæ*, or "grasses," contains the genus *Lolium*, which is composed of only a small number of indigenous species. These are *Lolium temulentum* (Linnæus), *Lolium linicola* (Sond.), *Lolium italicum* (Braun), *Lolium perenne* (Linnæus), *Lolium rigidum* (Gaud.), *Lolium multiflorum* (De Candolle), and *Lolium tenuis* (Linnæus). Some of these are valuable as pasture or forage grasses, but two of them—*Lolium temulentum* and *Lolium linicola*, more especially the former—are of great interest to the botanist and toxicologist, and perhaps in a lesser degree to the hygienist, from their possessing peculiar and dangerous properties. These two alone form the subject of this communication. *Lolium temulentum* is one of the most widely-distributed plants on the surface of the globe, being found in Europe, Asia, Siberia, America, Japan, New Holland, Australia, North Africa, Syria, etc. It is an annual plant, and its height and robustness depend a good deal upon soil, climate, and other conditions in which it is grown; these, it would appear, are also influential in the production of these varieties. One of these has been named *Leptochæton* by Braun, but it has been made a species by With, who has styled it *Lolium arvense;* it has also been designated *Lolium robustum*, from its size.

A second variety, *Machrochæton* (Braun), may be taller, and appears to be most frequently found in oat fields in France, though it is not altogether absent from the land on which other cereals grow; and a third, though a much less common variety, *Oliganthum* (Gordon), is also enumerated.

These three varieties are marked by distinct anatomical characteristics, which it would be superfluous to particularize here. What is most important to notice is the fact, that *Lolium temulentum* is a weed, that it comes to maturity and its seed ripens at the same time as the ordinary cereals—barley, wheat, oats, rye—among which it frequently grows in more or less abundance, and that its grain is therefore found among that of these plants, from which it is easily distinguished.

It owes its distinctive designation (*temulentum*) to its supposed intoxicating qualities, and in France it is commonly known as "ivraie enivrante." In this country it has been known to agriculturists and others from time immemorial, as "darnel,"[1] and "cockle."[2]

---

[1] Tusser, in the sixteenth century, in a sonnet, asks, "Doth *darnell* good among the flowery wheat?" and Gerarde remarks, that "Among the hurtful weeds *darnell* is the first."

[2] Tusser, in his Five Hundred Points of Good Husbandry, writes :—

> "I speak not of mayweed, of *cockle*, and such,
> That noyeth the barley so often and much."

The earliest notices we have of the plant and its seeds intimate that it was not held in esteem, and in many instances we have evidence that it was looked upon with aversion and dread because of its toxical properties. Eastern people, in New Testament times, as we may learn from the thirteenth chapter of St Matthew's Gospel, which contains the parable of the Tares (*ζιζάνια*—*zizania*) did so regard it. The Greeks, according to Theophrastus, believed it to be derived from the transformation of wheat, under the influence of damp or wet weather; and Columella gives us to understand that such was also the opinion of the Romans. Ovid, Pliny, and Plautus allude to it, and Virgil refers to it as "infelix lolium." Galen and Diascorides imagined it possessed medicinal properties. Columella certainly recommends lolium boiled as food for poultry, but there can scarcely be a doubt that the grain of this plant was not in favour, neither in his time nor in the Middle Ages.

Its supposed intoxicating properties seem to have been borrowed at an early period in the production of beer, to which the seed was added to make that beverage more potent. Though a law was passed in France so long ago as the reign of St Louis (thirteenth century), forbidding "de faire entrer l'ivraie dans la biere," yet the practice was continued up to our own time on the Continent, and perhaps also in Britain. At any rate, in a MS. account of Galloway, dated 1684, and quoted in "Caledonia" (vol. iii. 284), according to Mr A. S. Wilson,[1] mention is made that "the bere was generally very oatie—that is, mixed with wild oats; and in some districts it was mixed with *darnel*, which they called 'roseager;' that being narcotic, occasioned strangers to find fault with the ale, though it did not much trouble the inhabitants, who thought it no ill ingredient, as it made the drink stronger."

Until a comparatively recent period, it was believed that *Lolium temulentum* was possessed of powerful toxical properties, and many writers have described the accidents arising from the grain having become casually mixed with the food of people; while excellent authorities in botany, medicine, and other branches of science, have expressed the opinion that it is narcotic and poisonous.

With mankind it would appear that it is only when the seed has got amongst grain—such as barley, wheat, oats, or rye—used in making bread, that accidents occur. The symptoms which result vary in intensity, according to circumstances, though they have been generally of the same character. They have chiefly consisted in more or less severe headache, vertigo, derangement of vision, ringing in the ears, pain in the stomach, nausea, vomiting, sometimes colic followed by diarrhœa, trembling of the limbs or the whole body, convulsive movements, uncertain staggering gait, lassitude, an irresistible desire for sleep, which is disturbed by horrible dreams, but is followed, after a variable duration, by a return to the normal condition. Death, preceded by convulsions and paralysis, sometimes occurs, but this is not at all frequent. In ninety cases collected by Chevalier[1] of persons who were affected in this way, there was no fatal termination; and of the different authorities who have written on this subject, there are only two—Rivière[2] and Mazière[3]—who give each an instance in which individuals perished after consuming for some days bread containing two-thirds and five-sixths of darnel. Christison states that, some years ago, almost the whole of the inmates of the Sheffield Workhouse were attacked with symptoms supposed to be produced by their oatmeal having been accidentally adulterated with *Lolium temulentum;* and in the *Gardener's Chronicle* for 10th January 1874, are letters on the poisonous action of this plant.

---

[1] Transactions of the Botanical Society of Edinburgh, vol. xi., 1872-73. Tusser, however, about the same period, evidently thinks cockle should be got rid of before the barley is converted into malt; for he says, in speaking of barley :—

"Some useth to winnow, some useth to fan,
Some useth to cast it as clean as they can.
For seed go and cast it, for malting not so,
But get out the cockle and then let it go."

But no trustworthy instances are recorded of animals being poisoned accidentally by *Lolium temulentum*—apparently for the reason that with the carnivora the seeds are not likely to get mixed with their food, and the herbivora do not usually receive them in sufficient quantity to produce any perceptible effect. Nevertheless, it is not absolutely impossible that symptoms of poisoning might be produced if these animals were fed on grain containing an admixture of darnel seeds for a prolonged time; and such cases may have occurred and the illness been ascribed to some other cause.

The facts relating to the toxical action of *Lolium temulentum* have, however, not generally been sufficiently established or satisfactory to entirely convince many people—and among these some very high authorities—of its dangerous properties; and some even go so far as to deny that healthy darnel-seed is in any way injurious, but that when accidents do follow its use, these are due to its becoming ergotized or otherwise altered. Thus, the writer of the article on "Darnel" in *Chambers's Encyclopædia* states that "very recent researches on the Continent have completely established the perfect harmlessness of this grass and of its seed, and the effects which have been ascribed to it must therefore be regarded as proceeding from grain injuriously affected in some way by bad weather." No reference is given to these experiments. Professor Bentley, in his *Manual of Botany,* in alluding to *Lolium temulentum,* says, "The powerful properties of the last grass would appear to be due to its becoming ergotized, as its described effects upon the system closely resemble those produced by the common ergot." And in Professor Balfour's *Botany* mention is made of the grass being narcotic and poisonous; "but," it is added, "this has not been fully proved."

---

[1] Annales d'Hygiene Publique et de Médecine Legale, 1853.

[2] Recueil de la Société des Sciences de Montpellier, 1792.

[3] Memoires de la Société Royal de Médecine, 1797.

Mr A. Stephen Wilson,[1] from an examination of the seeds of darnel, and experiments upon himself, concludes that when healthy they are perfectly harmless, and that when injurious they must have been ergotized. His experiments were as follows:—The grains of darnel employed were partly ripe and partly slightly unripe; they were air-dried, and may have contained 10 per cent. of water; all ergotized seed was rejected. Two grains (or eight ripe seeds) were reduced to meal in a mortar, mixed with cold water, and swallowed. No symptoms of any kind produced.

Next morning before breakfast, four grains were treated as before and ingested, and with the same negative result. A considerable quantity of the seeds was then ground, the paleæ being separated from the meal by a pepper-box; the meal contained nearly all the bran, had a slightly yellowish tinge, was whiter than ordinary oatmeal, and had a taste like well-baked oat-cake. With it was baked a cake of 100 grains, which was divided into eight portions. Two of these (25 grains) were eaten before breakfast, and towards night it was fancied that a slight gnawing sensation in the stomach was experienced; but this only lasted for a few minutes, and there was no giddiness nor other symptom. Two days afterwards the remaining fifty grains of cake were consumed, but nothing particular was remarked; and five days subsequently 100 grains were made into pottage and eaten with milk, but again nothing was experienced in the way of toxical symptoms.

It was then resolved to test the husks, which correspond to those of barley and oats, not to those of wheat and rye. Of these husks, 94 grains (the produce of about 3100 seeds) were beaten up in a mortar with 70 grains of darnel meal; and as Lindley and others speak of fatal consequences resulting from darnel mixed with wheat-flour, a small quantity of red-wheat meal was added. This was made into an unfermented cake, of which one-fourth (containing 23·5 grains of husk, 17·5 grains of darnel meal, and about half an ounce of wheat-meal) was consumed; no symptoms followed. Next day the remainder was eaten, part before breakfast and part after, but no symptoms of any kind followed.

Next, 310 grains of darnel meal, equal to about 1800 seeds, were baked with yeast in the usual way in which wheaten bread is prepared, and two slices, containing about 62 grains of flour, were eaten with butter at breakfast. No inconvenience. The ensuing day, before breakfast, the remains of the loaf, containing about 248 grains weight of dry meal, were swallowed, but still nothing unusual was noted. Thus, in about twenty-eight days, 561 grains of darnel meal, equal to about 3300 seeds, and 94 grains of darnel husk, equal to the husks of about 3100 seeds, were eaten in doses varying from 2 to 248 grains, without injury. This result led Mr Wilson to declare that in such quantities *Lolium temulentum* is not justly designated; that its seeds and husks are not "infelix," are not "narcotic," are not "acrid," are not "unwholesome," are not "injurious," do not cause "delirium," do not produce "stupefaction," and are not "poisonous," nor productive of "fatal results."

---

[1] Transactions of the Botanical Society of Edinburgh, 1872-73. *Gardener's Chronicle*, January 24, 1874.

On another occasion, the same gentleman experimented with the seeds of about eighty separate plants, the best of them showing from twenty to thirty stems, but, in consequence of the alarming development of fungi on the spikelets, the whole were pulled up before the seeds were dead ripe (a circumstance to be noted). About forty of the spikes showed ergotized kernels, but these were rejected, and only those freest from fungi were used for the principal experiment. When the clean seed had dried naturally upon the stems, it was thrashed and ground into meal in a coffee-mill, and cleared of the husk by a fine wire sieve; the meal thus consisting of the kernel, the greater part of the bran, and a small portion of broken husk. One thousand grains were baked into an ordinary loaf of wheaten flour, the proportions of the dry meal being 14 per cent. darnel, 86 per cent. wheat. Another thousand grains of darnel meal were also mixed with wheaten flour and made into twenty biscuits, the percentage of darnel meal being 25, and each biscuit containing 50 grains. One morning before breakfast a biscuit was eaten; next morning a slice of bread containing 100 grains of darnel; the following morning two slices, containing 200 grains; next morning the same, and two biscuits at tea, being 300 grains; next day, two slices of bread at breakfast, two biscuits at dinner, and two at tea, being 400 grains; next day a biscuit was added to this quantity; in the course of the seventh day the proportion eaten was equal to 500 grains; the amount altogether consumed during the seven consecutive days being 2000 grains of darnel meal. Some of the slices of bread and biscuits were eaten hot, as Linnæus and others had stated that little effect was produced otherwise; but no effects of any kind were experienced.

"Whoever," concludes Mr Wilson, "would maintain the bad name which has been attached to darnel must rebuild his assertions on experiments, the conditions and surroundings of which are adequately known and set forth."

Another experimenter, Dr John Love, made some trials, which are referred to in Pratt's "Flowering Plants," and others which are mentioned by Mr Wilson in his paper. Of the latter, he says:—"Beginning with two-drachm doses infused in boiling water, I took next a half-ounce of the seed, drinking the infusion and masticating and swallowing the seeds. Having obtained some recent seed, I began with smaller doses of one drachm, increased to half an ounce, until the seed was all consumed. Not the slightest effect was produced on the pulse or general system, and I therefore concluded either that the effects had been overstated, or that the seed grown in Scotland possessed less noxious properties; the latter being probably the fact."

So, it would appear, the question as to the toxical properties of *Lolium temulentum* at present rests in this country; and if we had no further evidence than that already alluded to, it must be confessed that it would prove eminently unsatisfactory. But—thanks to the researches of M. Baillet, Professor of Zoötechny, Hygiène, Zoology, and Botany, at the Alfort Veterinary School, who, in conjunction with M. Filhol, Director of the Preparatory School of Medicine and Pharmacy at Toulouse, has for a number of years conducted a series of experiments in this matter with a view to decide the vexed question, and to ascertain the kind and degree of disturbance which the grain of darnel sets up in the economy of animals to which it has been administered—the problem has been solved, and the toxical properties of this plant fully established. Not only has this been settled with regard to *Lolium temulentum,* but it has also been clearly established that a kindred plant—*Lolium linicola*—is possessed of at least as pernicious properties; thus negativing the statement that darnel was the only dangerous plant in the order of grasses.

The symptoms and the lesions due to administering the grains of these plants to animals, are of great interest to the toxicologist, and an attempt will therefore be made to give a *résumé* of these gentlemen's experiments, the detailed description of which has appeared at different times in various works.[1]

And first with regard to "darnel." When carnivorous creatures, such as the dog or cat, receive in their ordinary food the meal of *Lolium temulentum,* in doses of 250 to 500 grammes for the dog, and 40 to 200 for the cat, its toxical action is soon witnessed. In a quarter or half an hour, or even in an hour or more after its ingestion, the animal becomes dull, and seeks to withdraw itself from observation. At the same time tremblings appear in different regions of the body; these are at first slight, local, and ephemeral, but they soon become general, continuous, and more or less violent. Most frequently they are accompanied by spasmodic contractions of the muscles of the limbs, neck, face, and eyelids; as well as convulsive movements, and sometimes even tetanic rigidity, of the neck, legs, and tail. It often happens that there is an abundant viscid salivation which terminates in vomiting; but the absorption of the active principle of the lolium is so rapid, that even when vomiting occurs speedily after the substance has been swallowed, the act produces no amelioration in the animal's condition, nor does it avert dangerous consequences.

Left to themselves, animals suffering from the effects of *Lolium temulentum* are inclined to lie; but if made to get up and walk, other symptoms appear. The limbs are spread out, as if to prop up the body, and progression is slow and unsteady; the animal puts its feet to the ground with hesitation, as if its doing so caused it pain; and most frequently the general tremblings and involuntary contractions of the muscles are so severe that the creature cannot maintain its balance, and is compelled to lean against the wall or anything within reach for support. If it is now forced to move, it stumbles helplessly forwards, and its limbs may even suddenly flex under it, when it falls and can scarcely arise again. In some cases, during the intervals in these crises, the animals seek for water, but they cannot drink because of the tremblings which agitate their jaws; the same occurs when they attempt to eat, for the jaws cannot be separated to seize the food.

---

[1] See Journal des Vétérinaires du Midi, 1863, 1864; and Nouveau Dictionnaire Pratique, etc.; Vétérinaires, vol. x., 1874, article "Ivraie."

However severely the animals may be affected, or however acute may be their sufferings, their intellect does not appear to be involved. They recognise the voice of those who attend to them, raise the head when called, wag the tail, and, when no longer able to walk, even drag themselves towards their friends to be caressed. The vision, nevertheless, seems to be confused; and in nearly every instance the pupils are greatly dilated. In one case, however—that of a cat—the pupils were extremely contracted.

To these essential symptoms may be added, an accelerated pulse and respiration, powerful beating of the heart, and visible mucous membranes of a reddish-violet hue.

When the dose of *Lolium temulentum* is not sufficient to bring about a fatal termination, the symptoms gradually become less urgent; though the period at which they disappear varies considerably. In most cases, it is from three to six or eight hours; ordinarily, an interval of somnolescence or coma succeeds the violent agitation and convulsions previously witnessed. The creature lies and sleeps soundly, and during its slumbers the tremblings are still observed; at times there are jerkings or starts of the whole body, and convulsive movements of the limbs. These latter symptoms, however, soon disappear in their turn, and on the day following the experiment, at the latest, there is seldom anything more observed than slight partial tremblings at more or less rare intervals.

Of course, different results are witnessed now and again, and depend not only upon the dose of *Lolium temulentum* administered, but upon the resistance certain animals offer to its action. Baillet and Filhol saw a dog which had been dosed with it, exhibit at intervals partial shiverings or tremblings seven or eight days after it had been administered.

When the dose is sufficiently large to cause death, the symptoms above enumerated, instead of subsiding, become exaggerated; the convulsions increase until they have attained extreme violence, and the animal usually succumbs during the crisis of one of these attacks.

When the body of an animal which has perished from the effects of *Lolium temulentum* is examined, all the lesions which characterize the action of narcotico-acrid poisons are observed. The mucous membrane lining the stomach and intestines offers traces, more or less marked, of irritation—these sometimes occupy a large surface, and in other cases are very limited. The liver and spleen are gorged with dark-coloured blood, and all the venous system is filled with a similar-tinted fluid, which is likewise noticed, but in smaller quantity, in the left side of the heart and the principal arterial trunks of the body. The nerve-centres are also congested; the vessels on the surface of the brain and spinal cord are distended with blood, and, when the nerve-tissue is incised, the sections appear dotted with reddish points which look like so many minute apoplectic clots.

The *Lolium temulentum*, in the form of grain or flour, does not appear to have much effect upon herbivores or poultry; and to produce any marked symptoms on these creatures, it is necessary to have recourse to the administration, in large doses, of the active principles contained in the seed. Nevertheless, Baillet and Filhol succeeded in destroying a horse at the Lyons Veterinary School in 1820, by giving it two kilogrammes of *Lolium temulentum*. The symptoms then observed were, great dilatation of the pupils, vertigo, staggering gait, partial tremblings in different parts of the body, and peculiar undulating movements commencing in front and passing to the hinder extremity of the trunk. The animal afterwards fell; its body was cold; the limbs were extended and rigid; the respiration was difficult; the pulse slow and small; and there were convulsive movements of the head and legs. This state continued until the next day; the animal became rapidly feeble, viscid saliva flowed from the mouth, and death took place in thirty hours after the commencement of the experiment. At the autopsy nothing more was found than traces of irritation in the small and large intestines.

In 1860, Baillet and Filhol undertook a series of researches on this grain. The first thing they did, after assuring themselves of the reality of the foregoing facts with regard to this plant, was to discover, by chemical analysis, if it contained only one or several active principles. This analysis led to the following results. One hundred parts of the grain contained—

Starch, . . .	33·56	Albumen, . . .	18·60
Green oil, . .	1·15	Extractive matter,	24·95
Yellow matter, .	1·80	Bran, ...	15·45
Dextrin, . .	1·75	Ash, ...	2·74

The starch is white, and has neither taste nor odour; it has no perceptible action on the economy, even when it is administered in very large quantity; and it possesses all the ordinary chemical characters of the fecula from other grains. It is noticeable, however, that the starch-grains of *Lolium temulentum* present a physical peculiarity. They are polyhedral, like those of maize, but differ from these in their very much smaller size. Nothing particular is to be observed with regard to the dextrin, albumen, bran, or ash, except that the last are remarkably rich in phosphates—equally so to wheat. With respect to what is termed the "green oil" and the yellow and extractive matters, the two first of which are obtained from the grain by the action of ether, particular attention is drawn to them by Baillet and Filhol.

The flour of *Lolium temulentum* yields to ether a fatty substance of a greenish-yellow colour, which has almost the consistency of lard. Treated in the cold state with alcohol at 85°, it is resolved into two substances, one of which, dissolved in the alcohol, has a fine orange tint, while the other, which is insoluble, is green. The yellow matter obtained by the evaporation of the alcohol is solid, and of the consistency of somewhat soft wax. The green substance is fluid.

Since the year 1860, the experiments of Baillet and Filhol have shown that the fatty matter extracted from the darnel by ether is an energetic poison for the carnivora; but it remained to determine what the toxic principle was which gave this matter its redoubtable properties, and the following was the course pursued to attain this object:—After mixing a certain quantity of the fatty matter derived from treating the meal of lolium by ether with soap ley, the mixture was kept at a mild temperature for two hours, after which it was left for eight days to allow time for its complete saponification. At the end of this period this soap was dissolved in distilled water, and the solution filtered. There remained on the filter a yellow substance, soluble in alcohol and ether, and analogous to that already mentioned. The watery solution, having been agitated several times with ether, yielded a fresh quantity of the orange-yellow substance, which was easily obtained by evaporating the ether. This substance was repeatedly washed with boiling water, until it did not manifest a trace of alkalinity, and was no longer saponifiable.

After isolating the yellow matter, the soapy solution was boiled in order to expel the ether it still contained, and it was then decomposed by tartaric acid; by this means a greenish oil was developed on the surface of the liquid. This oil was removed, and its weight determined, when it was found to form about two-fifths of the matter extracted from the meal by the ether, the yellow substance forming the other three-fifths.

The green oil thus separated has no action on animals, but the yellow matter is very active. Nevertheless, this yellow matter does not represent the completely isolated active principle; the latter is associated with xanthin, which gives it its peculiar colour, and another substance, afterwards found to be crystallized cholesterine. The green oil owes its colour to traces of chlorophyll.

(*To be continued.*)

THE BRITISH MEDICAL ASSOCIATION.

THE meeting in Edinburgh of this Association during the month is an important event, which well deserves some attention. When it last met in Edinburgh, about sixteen years ago, under the presidency of the great and good Dr Alison, it was an inconsiderable body; now, under the presidency of our first physician, Sir Robert Christison, it numbers above 7000 medical men.

Were the meeting solely for friendly social purposes, it would be of the greatest importance. To form or to renew acquaintances, to cement friendships, to interchange civilities, to see our greater brethren, to see our lesser brethren,—are all objects which alone would be worth all the trouble and expense which the Association meeting involves.

In addition to fulfilling these purposes, the meeting affords much valued opportunities for contributing to the progress of science, for discussion of difficult medical questions, whether theoretical or practical, for promoting reforms, and for generally diffusing professional intelligence and zeal.

In all of these respects, the instant meeting promises to at least equal any former one. The various presidents, the orators, the announced papers, the entertainments, the numbers expected, the great preparations, constitute a very imposing whole, equally creditable to the Association, to the Reception Committee in Edinburgh, to the University, and to the College of Physicians. The success of the meeting is assured as far as can be rationally anticipated.

It is very difficult to give a complete account of the utility and necessity of such institutions as the British Medical Association, nor do we intend to attempt it. The same difficulty is felt by the numerous apologists for Royal and other scientific societies, and for lectures. Meantime, we satisfy ourselves with what is called the logic of facts. Such institutions not only survive, but they flourish. They not only flourish; they also increase in number. While they increase in number, they certainly do not diminish in power. And all this is true, not only of Great Britain and Ireland, but of the whole highly civilized part of the world. For all men of common sense, this is enough in the way of argument for the value of these institutions.

In each country, development goes on according to its history and peculiarities, and the genius of its people. For example, in this country and in America, there is an association exclusively medical, or nearly so; while in Germany, a much wider area of science is taken in along with medicine. It is worth noticing, that such associations arise and flourish chiefly in those countries which are the acknowledged pioneers of progress.

We look forward with pleasure and hope to the meeting in Edinburgh, and bid our visitors and comrades—All hail!

Part Second.

REVIEWS.

Cyclopædia of the Practice of Medicine. Edited by Dr H. VON ZIEMSSEN. English Translation, edited by Dr ALBERT H. BUCK, New York. Vols. I. and II. *Acute Infectious Diseases.* Vol. III. *Chronic Infectious Diseases.* London: Sampson Low, Marston, Low, and Searle: 1875.

ZIEMSSEN'S work on the Practice of Medicine is one very well known to all readers of German, interested in the subject. It consists of a series of independent treatises by some of the most eminent clinical instructors in Germany, and is intended to embrace the entire range of special pathology and therapeutics, and will comprise—in the English edition—about fifteen volumes large octavo, of from 500 to 700 pages each. This most important work, of which about one half is already published in the original, is, by special arrangement with the German publisher and editor, now being translated into English, and published by *subscription* by Messrs Sampson Low and Co. The subscription price is one guinea for each volume, payable on delivery, and it is intended to publish four volumes per annum, so as to distribute the cost of subscription nearly equally over four years. So that for one guinea a quarter, in less than four years each subscriber will be provided with a practical Handbook of Medicine, which, for completeness of design and careful fulness of execution, will successfully vie with any similar work in any language, and will certainly prove a great boon to the English-speaking portion of the profession even more than it has already done for those for whom it was originally intended. It opens up new lines of thought hitherto unheard of by the average English practitioner, and gives him a compendium of scientific information, not only on the usual subjects comprised in a practical work on medicine, but also upon many important matters to which his attention as yet has scarcely been directed at all, and for which, when he requires it, as occasionally happens, he has now to look through scattered monographs, the very names of which are frequently undiscoverable till long after the occasion for their use has passed away. We cannot too strongly recommend subscription to this publication to our readers as the cheapest method of providing themselves with a complete repertorium of practical information upon all subjects of importance connected with medicine. Four years seems a long time to look forward to for the completion of the work, but those who read it and study it will find the time well spent, and will not consider it too long. And besides, no reasonable man will be disposed to quarrel over the time employed in issuing these volumes, when he reflects that the payment by instalments is thus made easier for his pocket, and also that the only English work which can at all compare with it—Reynolds's "System of Medicine"—has been already nine years in publishing, and its fourth and last volume is apparently no nearer the birth yet than it has ever been; while Copland's "Dictionary of Medicine," which is comprised in three volumes, took fourteen years to make its appearance. At the same ratio Ziemssen's work ought to occupy no less than seventy years in being hatched; so that we may really congratulate ourselves, that the influence of the age in which we live has at last succeeded in impressing itself even upon medical publications.

The typography of these volumes leaves nothing to be desired, the illustrations are clear and accurate, and the editing has been most carefully done; so that though translations of German works emanating from America, as this mainly does, are usually very instructive examples of how not to do it, we can conscientiously recommend this one as a remarkable exception to this too general rule. Not that there is not in the very title of these three volumes a word which apparently gives the lie to all this praise; for no one would ever expect to find cholera, hay fever, or intermittent fever, reckoned amongst acute *infectious* disorders; and we think that most people will be considerably astonished to find anthrax, rabies, and snake-bite reckoned among the chronic *infectious* diseases. The use of this word being all the more likely to introduce confusion into the practitioner's mind, and to lead him to suppose that it is merely an indication of pathological progress in an unexpected direction, that with these, to him, novel illustrations of contagiousness, there are mingled many diseases ordinarily recognised as highly infectious, such as typhus, measles, scarlet fever, etc. Unfortunately, *Infections-Krankheiten* are not necessarily also *ansteckend*, and therefore, though they may be infectious or contagious in the usual acceptation of the term, they are not always so. Infective is probably the English word which most nearly conveys the idea meant; and as the error mainly affects the title-pages, and is a most important blot, we think it would be worth the editor's while to issue corrected title-pages for those who may wish to bind their volumes, with an editorial note to say that, where found in the body of the work, the word is to be correspondingly altered. Probably also the term *Invasions-Krankheiten* as applied to trichinosis, etc., would be equally well rendered by Invasive Diseases. The expression is quite as terse, and equally correct with infective, and does away with the use of such an awkward circumlocution as "Diseases from migratory parasites," which the editor has selected.

It is obviously impossible within the limits at our command to review these collected monographs with that amount of care and fulness which their importance demands. They are not all, as we may naturally suppose, of equal value, yet there is none from which the practitioner may not learn something of importance. Perhaps the weakest point in these volumes is that treating of the therapeutics of the acute febrile affections, in which the use of cold baths is made to occupy a too prominent position. He who in former days wrote, that seeing a duck waddle into a burn, and take first a "Fussbad," then a "Sitzbad," and next a "Kopfbad," finally clapping its wings, and opening its bill to cry, as he supposed, "Priessnitz for ever!" but only saying Quack! quack! quack! fancying that he had written a witty thing, would have nowadays to hang his diminished head as a trifling and irrelevant joker in regard to an important therapeutic agent. For though we may choose, and rightly so, to go back to Currie as the great modern founder of hydro-therapeutics, we cannot deny to Priessnitz the credit of having kept alive—though after a most quackish fashion—the knowledge of the utility of cold water in the treatment of disease, and of having by his very excesses paved the way for its more general recognition. Still, this is always a troublesome, and sometimes a dangerous method of treatment; one which is certainly only requisite in the rarest cases, and then more applicable after the fashion of Currie, by cold affusion, than by any other mode of application. And we would as soon think of treating acute febrile affections generally by Hahnemann's globules as by Priessnitz's packs, or even Liebermeister's baths. But if the therapeutics of acute febrile diseases are rather more washy than we quite approve of, there is no weakness displayed in regard to the treatment of syphilis, in which the moderate use of mercury, and what some—pupils of Syme, for instance—would almost regard as the immoderate use of the iodide of potassium, are laid down as remedies antagonistic to the virus of syphilis with a firmness and precision which we hold to be as true as it is refreshing to find it so fully accepted in this too sceptical age. Baümler's article on Syphilis is indeed one of the best, if not the best, in these volumes; it is only too short, but is very terse and condensed, and contains information upon almost every point, forming a very full, though short, repertorium of our information on the subject from prophylaxis to pathology. It is a most melancholy history; for the extent to which the disease of the fathers and mothers, often most innocently contracted, is visited upon the children, is almost wholly unsuspected by the public; and yet it is a knowledge which ought to be more widely spread, and would probably do more than anything else to remove that insane opposition to the Contagious Diseases Act, which is solely the offspring of unreasoning ignorance.

The other monographs in this volume on Anthrax, Glanders, Hydrophobia, and on the diseases produced by other animal poisons, as well as those arising from the migrations of parasites, such as the echinococcus, cysticercus, and trichina, are of great general interest and importance, and convey information which is not readily to be found in so accessible a form. The bibliography is, we may add, weak; many important works and papers are wholly omitted, and undue prominence given to others of less importance. Moreover—and this is a great blot in the English edition—English works and papers are in a large proportion of cases only quoted second-hand from German sources, and have no reference to the journals in which they originally appeared.

On Paralysis from Brain Disease in its Common Forms. By H. Charlton Bastian, M.A., M.D., F.R.S. London: Macmillan and Co.: 1875. Pp. 340.

There is no subject which at the present time possesses more interest for the profession than the connexion of definite symptoms with definite brain lesions. The experiments performed by nature are accompanied, as a rule, by fewer elements of disturbance than those which the practical physiologist attempts, and the cerebral organs in man being much more highly differentiated than those of the lower animals, our great hope of ascertaining the peculiar functions of the various parts of the brain in man, lies certainly in the connecting an accurate clinical history with careful post-mortem examination, much more than in any cutting or slicing of brains of an inferior type, or even than in sending through such brains electric currents, the course of which we cannot accurately limit, and which we have every reason to believe must wander through the brain substance more or less dendritically. We therefore hail with pleasure any attempt to connect symptoms with lesions, such as we have in the lectures now before us. These lectures are fluent, clearly written, and most interesting, conveying a great amount of information; the two points of most importance discussed being the blood supply of the different parts of the brain, and the subject of regional diagnosis in brain disease, the one being intimately connected with the other, though this, perhaps, is not brought out so clearly as it ought to be. When we desire to estimate the scientific value of any work, there is, perhaps, no better mode of doing so, than to take one particular branch of the subject treated of, and see how far the views propounded are in advance of those entertained. In this respect, the subject of aphasia is that, perhaps, best suited for our object, because it is a symptom which has become very definitely connected with a specific lesion of one particular part of the brain,—a connexion which has, however, been shown to be a mistake, by the fact that destruction of Broca's convolution, as this part has been termed, has been known to exist in various cases in which ataxic aphasia was not present. But Bastian has not got beyond this view; he still connects ataxic aphasia with lesion of Broca's convolution. He does not even mention the view so ably advocated by Dr Tuke, that ataxic aphasia depends upon injury to the extra-ventricular nucleus of the corpus striatum, though we believe that is the portion of the brain lesion of which is never found without the coexistence of ataxic aphasia, and which is always injured when that symptom is present; while the frequency of the connexion of that symptom with right-side hemiplegia simply depends upon the fact that right hemiplegia is more frequently produced by embolism than left hemiplegia, and that embolic injury to the corpus striatum more frequently involves injury to the extra-ventricular nucleus than any other lesion of that ganglion; left-hemiplegia being less frequently of embolic origin, and when it is so, always involving from physical causes the presence of a lighter and smaller embolus, and consequently a less profound injury, and a less persistent aphasia, if any be present at all. Without, therefore, having any pretension to greater scientific accuracy than other works on the same subject, these lectures will still be found to convey the prevalent views in a very readable form.

A Manual of Diet in Health and Disease. By THOMAS KING CHAMBERS, M.D. Oxon., F.R.C.P. Lond. London: Smith, Elder, and Co.: 1875. Pp. 352.

On Diet and Regimen in Sickness and Health. By HORACE DOBELL, M.D. Sixth Edition. London: H. K. Lewis: 1875. Pp. 248.

DR CHAMBERS'S work bears the impress of a man of high culture and large experience; whatever he says, he says well; and any opinion which he gives, is given in such a way as not only to show that he himself fully believes it, but also in a great measure to commend itself to the common sense of mankind. A great deal of information of a practical kind is to be found in this book, from the Italian method of preserving wine in a flask, not intended to travel, by means of a thin layer of olive-oil—a method which is largely applied to wine in cask in hot climates, and has been used here in the matter of beer, to the great disgust of brewers, who dislike having the interior of their casks oiled,—down to a recipe for a batter pudding. By the way, a custard pudding is much lighter and more nutritious than a batter pudding, but a prescription for it has been omitted. We are very much of opinion that a healthy stomach can take care of itself, while a sick one is not the better for diet regulated by its proprietor, but should be at once placed under the care of a regular medical adviser, and consequently that such semi-popular manuals are not much required, and by no means useful; but we do not object to them, as, if acted on by the patient himself in the light of his own common sense, they are sure ultimately to do more good than harm to the profession. Though popular in its character, the practitioner will, however, derive both pleasure and information from the perusal of this work; but we must warn him against two practical errors to be found in it, the one being that the dietetic treatment of delirium tremens is not only successful, but safe; and the other, that starvation is the best treatment for aneurism.

Dobell's work has already reached the sixth edition, so all criticism of it is superfluous; and the great demand there has been for this work shows the interest it possesses for the non-professional public. For ourselves, we incline to the opinion so tersely expressed by the late Sir Richard Jebb, who was much consulted on these matters, that neither the poker nor the tongs should be eaten, because they are decidedly indigestible, nor the bellows, for they are windy, but that anything else may be safely taken in moderation, quantity and idiosyncrasy being the two great points to be attended to, a third essential being to take care that digestion is completed before fresh food is introduced into the stomach. All other regulations are superfluous, and diverge from the true science of dietetics just in proportion to the dogmatism with which they are prescribed.

Animal Mechanism: A Treatise on Terrestrial and Aerial Locomotion. By E. J. MAREY, Professor at the College of France, and Member of the Academy of Medicine. London: Henry S. King and Co.

THE title of this volume, along with the prestige which the name of its author has acquired, led to our taking it up with more than ordinary interest.

The subject, *animal motion*, for that is what locomotion is resolvable into, is one of the greatest problems which the human mind can contemplate, each living creature being a naturally constituted system in its own orbit. As we looked, at first cursorily, through Professor Marey's book, the thought recurred to us of a treat enjoyed on another occasion, on obtaining a first sight of an early edition of Borelli's work on animal locomotion in its original form. We were at that time burning for more exact knowledge than had appeared to us on the matter, and as the slow process of making out the Latin text proved tedious, we worked at the excellent diagrams, and with such effect, so life-like did these depict action, that when we leisurely read the work, we found little more to learn, its eloquence and precision notwithstanding, that the illustrations had not made plain.

We tried to study Professor Marey's book in the same way, but with totally different effect. It became almost immediately apparent that we were not merely gazing upon the face of a clock without hands, but upon a dial whose index lines pointed confusedly in wrong directions.

To award honour where honour is due is pleasant, and to point out fault, even though it lies before us, is the reverse; nevertheless, it being our vocation to watch over *life* and *health*, we are always in our glory while striving to save and cure; and we, therefore, reluctantly have recourse to stamping out, even when the duty to do so is obvious.

Professor Marey's work, consisting of 278 pages, is divided into three books; the first, of 101 pages, may be regarded as the prelude to his subject, "Animal Mechanism," and embraces a wide range of questions; and although embodying the expoundings of many able scientific men, little occurs in it that has any direct relevancy on the phenomena conçerning locomotion. Professor Marey makes frequent mention of the word *graphic*, the *graphic* method by which he has attained his assumed results, the finding out supposed mysteries of movement in animated beings. But it is remarkable that neither his diagrams, nor any help afforded by the text, display anything that, to our minds, appears *graphic*, *i.e.*, true in delineation of anything natural, whether the reference be made to movements more or less swift, or to states of comparative rest. We cannot see in those diagrams, assumed to be of horses, any true resemblance in form to normal animals; and as they are described as being taken from horses moving in different paces, we emphatically assert that the positions given are indefinitely false, many of them such as it is impossible for the animal to assume. Of necessity, our notice must be limited to what we consider the more important section of Professor Marey's work, that which treats of terrestrial, as distinguished from aerial locomotion: the former takes cognisance of the most important practical questions with which we have to deal in our daily vocations, and of approximately exact knowledge about which, interests impossible to enumerate are involved. Man, and the horse, are selected by the author for illustrating his theory of animal action on land.

At page 126 is a diagram of an apparently athletic man, described as in the act of "*running, provided with the apparatus intended to register different paces.*" We take this diagram of the man to make our remarks upon in preference to one of the horse, because it is more representative of what it purposes to show, and also because many more readers can recognise the form and position of the former than of the latter. This figure represents a man encumbered with the registering apparatus, which is secured to the crown of the head with a coil extending down to the left hand, which seems to hold an instrument and five or six coils communicating with another instrument held forward by the right hand, and with others extending to the feet. Now, let us consider the position of the figure, for this, and not the apparatus, is what concerns both readers and ourselves.

The position given, assumed to be graphic, is such as no man was ever seen in; to attempt to attain it, even though unembarrassed with the apparatus on the head, hands, and feet, the action would require a fixed point to hold by with at least one hand. But we are told it represents running, and, in fact, the position, which is crucial, never happens except when the body is in active movement; it is that of one foot revolved upon its apex—the balls of the toes. That is the terminal position in the action of the limb in progression. The parallel limb to that sustaining the action, as viewed laterally, is shown in its full extent behind the body, and seen behind the bearing limb from a side view, the upper part of the thigh and the buttock is pending obliquely, with heel to toe vertical. Are these the positions in which man in any normal attitude is ever seen? They are not. But, further, the combinations are impossible under any artificial effort—that is, in running—the limbs being in their relative positions as shown; and these remarks hold equally well with all the phenomena as seen in the action of quadrupeds and bipeds.

A few words to sustain this criticism on the sustaining limb, which, as has been said, is shown revolving upon the balls of the toes, and heel elevated, the knee is shown to some extent bent, the thigh oblique from above forwards, and the leg slightly oblique, in the opposite direction; whereas, that position of the foot, only compatible with action, requires the angles of all the shafts to be quite open, and those of the thigh and leg to be vertical from the hip-joint down to the ankle, the knee—in particular the patella bone, with its muscles and ligament—being at rest in the instant. And now, about the position of the opposite limb, at that instant lifted; where, and how should that appear? Fully extended before that represented as finishing its action, and its attitude should be shown with the heel approaching to the ground, so that, as the one limb's function terminates with the foot revolved and in a vertical line with the head of the thigh, the parallel foot assumes its function; with the heel advanced on the ground, the foot revolves by the action of the shafts, which have their action conferred from the body, by its endowed mechanism and force.

When men determine on producing or in some way establishing as true what they only imagine to be so, they deceive none more than themselves, and accordingly it behoves all to whom such novelties are submitted, to obtain evidence of the truth of what is alleged, and which bear on the general merits of the matter.

From Professor Marey's diagrams let us turn to his text, which runs as follows:—

"We will proceed no farther in the field of hypothesis, but we will, in conclusion, make an appeal to zealous experimentalists. Many who have been convinced of the great importance of this inquiry seem already to be engaged in this enterprise" (p. 101). "But what can be more difficult than to ascertain the common features, which unite acts so different as those of flying and creep-ing, as the gallop of a horse and the swimming of a fish? Still this has been frequently attempted" (p. 102). Yes, and successfully too, by Borelli, even if it were not in good measure understood, as we suspect it was, 2000 years earlier.

But we will let Professor Marey speak on, where he tells us, at page 111, that "In running and leaping we shall see that the body is entirely raised above the ground, and remains during a certain time. The weight of the body passes alternately from one leg to the other, and as each of the limbs places itself in turn before the other, the body is continually carried forward;" . . . . . "the body passes through periodical oscillations, the reaction of the impact of each foot on the ground; and the different parts of the body are subject to this reaction in various degrees" (p. 112).

"Motor Force.—This is found in the action of the extensor muscles of the thigh, the leg, and the foot."

"Of Running.—This mode of progression, more rapid than walking, consists, like it, in alternate treads of two feet, whose step-curves follow each other at equal intervals; but it presents this difference, that in running the body leaves the ground for an instant at each step" (p. 128). And then, we ask, where does it go to?

"This trace shows us that the body executes each of its vertical elevations *during the downward pressure* of the foot, so that it begins to rise as soon as the foot touches the ground." But, is there not constantly a foot touching the ground, no less in running than in walking? "But again," the author continues, "it (the body) attains its maximum elevation at the middle of the pressure of the foot, and begins to descend again, in order to reach its minimum, at the moment when the foot has risen, and before the other has reached the ground" (p. 129).

We will not do injustice to common sense by commenting on the above. We are, however, challenged again.

At page 130 he continues, "We shall have again to recur to these phenomena when we come to speak of the paces of the horse, in which a similar suspension of the body exists, and which are on that account called *elevated paces*."

This last phrase is new to us. The author will have to be asked, however, where he stores away his pulleys for dragging up his animals when they quit the ground, and also to what the tackle is *attached above*.

"Between the pressure of the two feet there is found to be silence in the rhythm, *i.e.*, the expression of that instant of the course when the body is suspended above the ground" (p. 133). "Thus, in the gallop, the body is sometimes in the air, sometimes, on one foot, and sometimes supported by two" (p. 135). Bravo! "There is scarcely any branch of animal mechanics which has given rise to more labour and greater controversy than the question of paces in the horse" (p. 138).

Then why not relate the whole truth, and say, that no section of human knowledge of equal importance in our age, has been equally argued upon in defiance of old knowledge, philosophical inductions, and common sense.

Again, passing on to page 166, we read, "In fact, the animal must not only support the weight of its body, but give it *violent forward impulses.* The greatest energy seems to belong to the first impact. At this moment, the body, raised for an instant from the ground, falls again, and one leg alone sustains this shock."

'In speaking again of the gallop, Professor Marey has adduced the following example:—"Children in their amusements often imitate this mode of locomotion when they play at horses" (p. 130).

And it seems to us that it is very unfortunate for both horses and the community, which has so much interest in them, that children are not the only section of its members who play at horses; and this brings to our mind a passage by an authority—a consummate horseman—"Happy indeed would it be for the arts, if artists alone were its judges" (Berenger).

Professor Marey, with his abundant quotations, seems to us to have omitted the most relevant, as concerning his own subject, both as regards the history of the knowledge of it, and of the chief errors imported, *i.e.*, hypothesis, indefinite, the propounding of which hindered the progress of truth, and led to the confusion into which the subject of animal locomotion has become involved, such as was never the case in its historical period before our day. Here we adduce a proposition from what we find to be an original source of error; we quote from Vial de Sanibel (date of work 1794), "It is well known to all who have observed the action of the horse, that the gallop consists of a repetition of bounds or leaps, more or less high, and more or less extended, in proportion to the strength and lightness of the animal."

Professor Marey has promulgated and amplified the above, without telling his readers where he obtained the information, by which, in a measure, this author would have relieved himself of a weight and responsibility—that of the revival and continuation of so much misconstruction; and the reading world would have known the source of the hypothesis it is asked to homologate.

Now, we will beg the reader to follow us and listen to the most ancient authority we have on the subject under consideration, viz., Xenophon, in his "Treatise on Horsemanship," translated from the original Greek, and published by Berenger in 1771.

In a popular treatise, written for the instruction of his young officers, Xenophon says, "A wide chest is to be preferred for beauty and strength, as it enables an horse to continue the same motion of his legs for a longer time without intermission." And again he says, "If the point of the shoulder (withers) is high, it gives the rider a safer seat, and makes the connexion stronger between the shoulders and the body." And then we have, from the same philosopher and expounder of animal mechanism and locomotion, this paragraph, "When all parts of an horse are firm and solid, he is lighter for the course, and consequently more speedy."

These eloquent expositions by Xenophon are such as we endorse; they correctly make the head and body the seats of command and power, and the limbs the executing instrumental constituents; the animal being like a planet, a system in its own orbit, whatever the media upon or in, the earth, water, or air. Xenophon said almost all that was necessary for the zoologist to know regarding animal locomotion; and a wise sentence, used by him in another place, is in admirable harmony with the above: "The first part to be attended to is the foot; for an horse would be of no use though the upper parts were very beautiful, if the under parts were insufficient to support it."

This practical statement is made because of the exposure of the foot to injury, which, being avoidable and controllable, called for the specially applicable sentence. Defects, however, and especially painful effects, happening to any region of the limb, disable it, and also disable the body, and whole economy of action.

Xenophon was not alone among the Greeks whose noble productions are still available for our instruction on animal motion; for although their paintings, like many of their writings, have perished, sculpture in goodly measure remains, and by that we find men and quadrupeds represented in life-like movements; and in the choice masterpieces to be found in the public galleries, and also in the Elgin marbles, that which we affirm, that all power proceeds from the body, is found manifest. The learned physicist and philologist Borelli, fellow-worker with Galileo, and contemporary of Newton, did not attempt to supersede old knowledge which had been preserved and brought down for so many ages, but enlarged upon it. Borelli was only applying his newly-wrought-out knowledge to the elucidation of animal action, and thereby supplemented that which was being demonstrated in regard to universal matter.

Whilst refraining from extending our remarks further in detail, we may express regret that, since Professor Marey has quoted so largely, he had not, even at the cost of being more prolix, made reference to some works, the authors of which take different views to those which he has expounded on animal locomotion.

A Guide to the Practical Examination of Urine, for the Use of Physicians and Students. By JAMES TYSON, M.D. Philadelphia: Lindsay and Blakiston: 1875. Pp. 182.

IN spite of the number of books upon the urine, this little work will really prove a welcome addition to the student's library. It is short but comprehensive, and not only contains a very concise and clear statement of the best methods for the practical examination of the urine, but also points out the fallacies to which these are subject, and the precautions which are consequently necessary to be taken. We know of no better book on the subject for a student preparing for clinical examination.

Myringomycosis Aspergillina (*Fungus Ear Disease*). By JAMES PATTERSON CASSELLS, M.D., M.R.C.S. Lond., etc., Surgeon to, and Lecturer on Aural Surgery at, the Glasgow Dispensary for Diseases of the Ear.

THIS pamphlet of fifteen pages (reprinted from *Glasgow Medical Journal*, January 1875) is the first of its kind in English aural literature. Our author's attention was drawn to "look out" for this form of ear disease in this country, by his having been asked by James Hinton, previous to the publication of his work "Aural Surgery, 1874," if he had met with a case of ear disease caused by the aspergillus fungus. Mr Hinton added that he had not seen such a form of ear disease in England, nor did he know of any aural surgeon who had. Dr Cassells replied that, although he was quite familiar with the appearance of the disease from his Continental training, he had not met the disease in his own practice at home. His attention having been drawn to fungi, he blames them for the "peculiar symptoms and erratic course" of some cases of ear disease which have passed through his hands, and "in one week thereafter [after receiving Hinton's question, we presume], viz., May 1874," he finds aspergillus flavus in three cases; "and in June, aspergillus nigricans in both ears in one case, and since then, several cases of the former variety of fungus have been seen by me in my private practice," our author states. After glancing for a moment at the history of the discovery of aural fungi, and notwithstanding the mention of earlier discoverers and recorders, he ascribes "all the honour of a new discovery" to Schwartze of Halle, 1865. Dr Cassells's account of the history of a case of fungus ear disease is accurate, and the signs by which one may *readily* recognise a case of ear disease due to aspergillus given by him are the results of experience with careful study. We are more inclined to the use of some of the hyposulphites as a parasiticide, but the success of our treatment with them may have been that our alcoholic treatment was used with a very strong spirit, the spiritus vini rectificatissimi of the Prussian Pharmacopœia. This in some cases caused great pain, probably explained by the highly sensitive corium being exposed, compelling us to have recourse to the hyposulphites. Of late we have used beneficially a mixture of equal parts of iodoform and burnt alum. Our author figures a spore-head of aspergillus niger from his own case, and asks us to compare it with a specimen of fungus figured, which he received from Professor Schwartze. We have no doubt of their being the real aspergillus nigricans, from what we have seen in our own practice here, and in the collection of Professor Gruber of Vienna. The last page gives the Bibliography of Fungus Ear Disease.

Zeitschrift für Geburtshülfe und Frauenkrankheiten. I Band, 1 Heft. Stuttgart: Enke: 1875.

Journal of Midwifery and Diseases of Women. Vol. I. part 1. Stuttgart: Enke: 1875.

We, in a former article, expressed regret at the disruption of the great Berlin Obstetrical Society. The old journal, "Beiträge," represents now the old society, "Gesellschaft für Geburtshülfe;" while the journal whose name is given above, and of which the first number only has appeared, represents the new society, "Gesellschaft für Gynækologie." Of both of these journals, so far as they have gone, we have no hesitation in speaking in terms of high commendation. Good and useful work is to be found in them. Yet we cannot but regret their joint appearance, for there is not food for both; or rather, one would easily do the work of both, especially when we have also going on the excellent "Archiv."

In this first number we have sterling papers by Eduard and August Martin, the latter on the Enucleation of Uterine Fibroids; we have also good papers by Paul Ruge and Benicke, by Löhlein and Fasbender, and very interesting cases by Jaquet and Staude. We recommend the book to obstetric students.

While we are speaking of this new journal, we must not fail again to ask attention to the great improvement or revival of the *American Journal of Obstetrics* under the vigorous management of Paul Munde, who rejoices in the useful work of translating good German papers into English.

The *Obstetrical Journal of Great Britain and Ireland* languishes and threatens to come out at last as a fœtus papyraceus. Our own pages show a greater amount of obstetric work than its.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LIV.—MEETING IX.

Wednesday, 7th July.—Dr D. R. HALDANE, *President, in the Chair.*

EXHIBITION OF PATIENTS.

I. *Dr Grainger Stewart* introduced—(1.) A patient suffering from PARAPLEGIA, due to pressure on the spinal cord, a consequence of disease of bodies of the vertebræ. Between three and four years ago the same patient had been under his care and had been shown to the Society. At that time the paraplegia had been complete, and cure had been effected by causing the patient, when out of bed, to wear a mechanical support, taking the weight of the head and shoulders off the spine. The recovery was so complete that in November 1872 he was able to earn his livelihood, and soon afterwards went to sea, where he worked in various vessels till the past winter. At that time the ship in which he was employed was in a storm, lost her masts, and the patient was compelled to work for fifty-two hours without rest. In consequence of this, he became ill in the same way as before, suffering great pain in the back, and losing the use of his legs. For some months, under various plans of treatment, he made no progress. He was then removed to Edinburgh, and admitted to the Royal Infirmary wards in March. He was then unable to walk, or even to stand, and, lying in bed, could move the right leg slightly, the left very slightly indeed. Sensibility was markedly diminished in the right leg, while, as has been shown, motion was mainly affected in the left. The curvature in his dorsal region appeared in the same condition as before, but there was tenderness on pressure over it, and he suffered constantly from severe pain just below the curvature and round the side. It was evident that the pressure was exerted mainly on the left side of the cord and upon the antero-lateral, and to a less extent the posterior columns. The same treatment, by rest and mechanical support, as had proved successful before, was adopted on this occasion, and with decided benefit, the pain having subsided, the sensibility having returned, and the motor power being gradually restored. When shown to the Society, he was able to walk fairly with two sticks. The supporting apparatus consisted in a pelvic portion, from which steel supports rose to each armpit; from the middle of the back a strong iron rod, curving up over the head. This rod had an eye at its upper extremity, through which a belt was passed, and so arranged as to pass under the chin and support the weight of the head. The only other treatment required was galvanism to the leg, and the subcutaneous injection of morphia for the relief of the thoracic pain.

(2.) A PATIENT who had for ten years suffered from SCLEROSIS OF THE POSTERIOR COLUMNS OF THE CORD, gradually extending to the gray matter, and apparently the antero-lateral columns. The points of interest to which the attention of the Society was directed were—1*st*, The very marked spinal myosis, which had existed unchanged for at least three years, and which was unattended by any of the other eye symptoms met with in cases of locomotor ataxia. 2*d*, The complete loss of muscular sense in the legs, the patient being unable to make out from which of his feet a weight of 6 or 7 lbs. was suspended. He could lift the weight perfectly, and make the movements natural to one who was endeavouring to ascertain the weight of an object, but was quite unable to recognise the weight. It might be slung over the leg, the foot, or between the toes. At one time a corresponding defect, though to a less extent, was apparent in one hand. 3*d*, The fact that cutaneous sensibility, which had been completely lost in the legs, was gradually returning, so that now, in testing the muscular sense, it was necessary to sling a towel containing no weight over the one leg, while that containing 6 or 7 lbs. weight was slung over the other, or he might, by his ordinary cutaneous sensibility, tell on which side the weight was suspended.

(3.) A CASE OF MUSCULAR ATROPHY. The patient, who is about 50 years of age, had, twenty years ago, been in the Royal Infirmary, under the care of Dr Gairdner, suffering from weakness of both hands, the muscles of the hands being then wasted. He had been a blacksmith up to that time, and his right hand had become first affected. During the past twenty years he has been employed as a light porter, but the arms had become gradually more affected, and the legs below the knees similarly involved. There was no affection of the sensory functions, nor of the motor, except in so far as the muscles were atrophied. In the right arm, the muscles arising from the external condyle of the humerus were well nourished; those from the internal condyle were diminished in bulk; those from the radius and ulna still more; the muscles of the hand so wasted, that the metacarpal bones stood out distinctly, the fingers permanently flexed from the greater wasting of the muscles of the back. The left arm was in an exactly corresponding condition, excepting that the muscles arising from the external condyle of the humerus were more wasted, those from the internal condyle less. Above the elbows and in the trunk, as well as in the legs above the knee, the muscles were natural; all the muscles below the knee were wasted. There were no fibrillary twitchings, and the electro-contractility of the muscles corresponded to their state of nutrition. The memory was somewhat impaired; there was no other cerebral or mental symptom. The bones and joints were natural.

(4.) A PATIENT suffering from BRONCHIECTASIS. He was a tall, round-shouldered man, about 50 years of age, with the peculiar dusky complexion often observed in the disease. He had suffered from cough for many years; the expectoration had become fetid, and the breath offensive, within the past eight months. The sputum was very copious; there was dulness on percussion over the lower part of the left lung posteriorly, and cavernous breathing and greatly increased vocal resonance indicated the existence of dilatation. So far as the facts could be ascertained, they confirm the view which Dr Stewart had maintained in a paper read before the Society, viz., that bronchiectasis, in this form of the disease, precedes the induration of the lung, and is not a result of a cirrhotic change in the organ, as Sir Dominic Corrigan and others had maintained.

(5.) A PATIENT suffering from CIRRHOSIS OF THE KIDNEYS. The case illustrated in a remarkable manner the true clinical history of the disease. The patient was 22 years of age, and had never observed any symptom of ill health until eight months ago, when she suddenly became affected with pain in the head, both in the forehead and in the crown, dimness of sight, dyspepsia and vomiting, palpitation and pain in the region of the heart, and frequent calls to micturition. She thus manifested eight months ago a group of symptoms characteristic of advanced cirrhosis. The points which appeared to be specially worthy of notice were—the age of the patient; her singularly healthy appearance; the absence at the present time, and almost throughout the whole course of the illness, of any dropsy; the urine being of the natural amount, and never having been either diminished or excessive; its being albuminous, containing a few tube-casts, the urea being diminished to 150 grains per day, the specific gravity being 1017; the hypertrophy of the heart and tension of the vessels, with some thickening of the walls of arteries; the dimness of vision; and typical albuminuric retinitis. The case thus exactly corresponds to the clinical history of it which is now generally recognised, there being, in particular, neither dropsy nor polyuria.

EXHIBITION OF PATHOLOGICAL SPECIMENS.

II. The *President* showed the LIVER and PANCREAS obtained at the post-mortem of a patient whom he had seen for the first and last time on Saturday. He was a sergeant in the militia, of tolerably steady habits, and previously in good health. On the Sunday previous he had an attack of diarrhœa, for which he got an astringent mixture. Next day his diarrhœa was better, but he felt weak. On the day following he felt worse, and suffered from pain and jaundice. As there was no accommodation for him in the barracks, he was sent home. On Wednesday he vomited, at first florid blood, and then dark-coloured matter. On the Saturday he still suffered from jaundice, black vomit, and in what he vomited, blood and sarcina could be detected. There was a feeling of uneasiness in the abdomen. The urine was nearly suppressed, and loaded with albumen. From the symptoms, acute atrophy of the liver was suspected; but on percussion, it was found that the liver was not diminished in size. To allay the vomiting, ice was given; but the patient died in the afternoon. He was not, previous to his death, comatose. At the post-mortem, the following state of the internal organs was found:—

Liver.—Weighed four pounds, was not softer than usual, and had an excess of fat in the hepatic cells.

Kidneys.—In the left there were scrofulous abscesses due to cretaceous deposits. Both kidneys were enlarged and in a state of acute degeneration, as the tubules were crowded with granular matter.

Stomach.—Contained black matter, but there was no ulceration nor erosion.

The *Pancreas* was enlarged and thickened, infiltrated with blood, and contained a great many compound granular corpuscles.

The omentum was thickened.

This case Dr Haldane considered a most remarkable one, both in regard to the healthy state of the patient a week before his death, and also in the curious changes which had taken place in the pancreas. The jaundice was probably caused by the thickening of the omentum compressing the bile-duct.

III. *Mr Annandale* showed—(1.) A fine specimen of a LARGE CARTILAGINOUS TUMOUR, growing from the tibia, which he had removed by amputation through the condyles of the femur. The patient was a young lady, who for six years had suffered from a swelling of her leg, which slowly increased in size until from its bulk it began to interfere with her activity in walking and dancing. The case was treated strictly antiseptically, and with the happiest results, for the constitutional condition was never affected by the operation, and she was sitting up at the end of three weeks.

(2.) An interesting example of NECROSIS OF THE WHOLE TIBIA, WITH ANCHYLOSIS OF THE KNEE AND ANKLE JOINTS, which he had removed by amputation from a boy. The lad was in a very weak condition, owing to the profuse discharge in connexion with the disease, and also in connexion with bed-sores from which he suffered. In this case also antiseptic treatment was carefully carried out, and with the most satisfactory results, as the patient's health and general state have rapidly improved since the operation, and the wound has healed without the slightest irritation.

(3.) The GREATER PART OF A TONGUE AND BOTH SUBMAXILLARY GLANDS, removed by operation on account of epithelial cancer. Although the case was not one very favourable for the operation, the patient's age (42) and his good condition of health encouraged him to advise the removal of the disease, having at the same time explained the exact state of matters to the patient. The patient having determined to submit to the operation, it was performed in the way already described to the Society and to the profession. The result had been an excellent recovery.

(4.) A PORTION OF THE PENIS, which he had removed on account of epithelial cancer. The disease had originated in the prepuce, and principally affected this structure, but it had also spread at one point to the glans and skin of the penis. As the patient was only thirty-two years of age, Mr Annandale was anxious to save, if possible, a portion of the glans, and the body of the organ. He therefore first slit up the prepuce so as to expose the whole disease, and then cut off the entire prepuce and portion of penal skin, and at the same time shaved off the affected portion of the glans, taking care to cut wide of the disease. In this way the entire disease was removed, and the patient left with a penis which promises to be useful in every way.

(5.) The HEAD OF A FEMUR, excised for hip-joint disease. He showed the preparation in order to express his agreement with the opinion of Dr Sayre of New York, that this operation was attended with little risk. In proof of which he might mention, that he had now excised the head of the femur in twenty-one cases, without a single death as a result of the immediate effects of the operation. In his opinion, the operation, to be successful, must not be delayed too long, and the joint and its surrounding textures must be interfered with to as slight an extent as possible during its performance.

(6.) A PHOTOGRAPH IN CONNEXION WITH A LITTLE BOY, seven years of age, who had first shown symptoms of double hydrocele of the tunica vaginalis, having a communication with the abdominal cavity. Tapping of the tunica vaginalis was resorted tó on several occasions, from 18 to 20 ounces of serous fluid being drawn off at each operation. As tapping only caused the fluid to collect more rapidly, and as the abdomen was becoming much distended, ordinary diuretics were freely given, but without doing any good. The patient was then placed under the care of Dr Bell of Dunfermline, who again tried diuretics, but without benefit. He accordingly gave tincture of belladonna in 15-minim doses three times a day, and gradually increased the dose to 30 minims. The result of this treatment was a perfect cure in three weeks.

IV. *Mr Chiene* showed a LOOSE CARTILAGE which he had removed by direct incision from the knee-joint of a patient in the clinical wards of the Royal Infirmary. The operation was performed on 10th June. A fortnight afterwards, the incision was healed, and now the patient was walking about with a movable joint. Unless for antiseptic measures, he would have hesitated to operate as he had done.

V. *Dr A. Macdonald* showed an INTESTINAL CONCRETION removed by Dr Robert Shand Turner, Keith, from the rectum of a patient, with the following history:—

Mrs C., aged about 60, had for several years suffered from attacks of pain at the epigastrium, which she supposed to be "cramp of the stomach." On 31st December last she felt severe pain in the right iliac region, and took a dose of purgative medicine. Soon after, the pain, she said, moved across the belly, and when the medicine began to act, she felt something which she could not pass. I saw her next day, and, on introducing my finger into the rectum, discovered and extracted the concretion now shown.

The nucleus is evidently a gall-stone, which must have ulcerated through the gall-bladder into the bowel, and there become encrusted with what is seen, on microscopic examination, to be hairs of the caryopsis of the oat, mixed with saline matter—the components of the true intestinal concretion. The patient had all her life lived to a considerable extent on oatmeal.

VI. *Professor Spence* then read a paper on the COMPLETED HISTORY OF A CASE OF RECURRENT TUMOUR, which appears at p. 102 of this number of the Journal.

The *President* said that the Society was indebted to Professor Spence for the interesting paper he had just read. The special case recorded was of unprecedented interest, from both the history and microscopical structure of the tumours being known so thoroughly. He agreed with him in holding that the case was not one of malignant tumour, as there was neither cachexia nor any other evidence of its being anything but inflammatory in its nature. The other two cases were decidedly malignant. He had only further to say that he had listened with much interest to the paper.

Mr Annandale had, as a surgeon, listened to Professor Spence's communication with great interest. He agreed with him in regarding the first case as non-cancerous in its nature. In the late Professor Syme's practice he had seen and examined microscopically several such cases; and he believed that a class of fibroid tumours recurring with unaltered structure really existed. In one case, there had been four operations in six years. Each time the structure of the tumour was the same, viz., oval-shaped nucleated cells. He thought, however, that the term "recurrent" should not be restricted to fibroid tumours, but also extended to others of a like simple character, such as glandular and cartilaginous tumours. In a case he had seen, a glandular tumour had recurred without altering in structure or affecting the health until ulceration began. In another case of recurrent fibroid tumour, the gentleman's health was affected by it only after ulceration had begun. He therefore would extend the term "recurrent" to other tumours of a non-cancerous nature, which showed this peculiar tendency. In regard to the other two cases related by Professor Spence, he agreed with him and Dr Haldane in holding that they were cancerous from the history, as no microscopic examination seems to have been made.

Mr Bell felt sure that the Society was indebted to Professor Spence for the trouble he had taken in bringing the case before it. It was one of great interest, and there were certainly few like it. In America Professor Gross had in one patient removed fifty-two tumours in twenty-six operations at the same spot. According to the account he had received, the patient had been free for six years since the last operation. He was interested in the whole subject, as he had seen some of Professor Syme's cases. In one case in which Professor Syme was certain that it was recurrent fibroid from its appearance, this was confirmed by the microscope. It recurred, however, as a medullary cancer, from which the patient died. In regard to the extension of the term "recurrent" to other simple tumours, we must keep in mind, that in regard to fibroid tumours, the tissues in which they form are widely distributed throughout the whole body; and, therefore, any recurrence could be explained, not by actual infection through the lymphatic or other channels, but simply through this fact of its general distribution. If a glandular tumour returned in the spot from which one had been removed, it was not so much a recurrence as a new tumour forming in one of the glands native to the place, and the number of such so-called recurrences might be limited only by the number of glands at the spot. If, however, a cartilaginous tumour recurred, it did so in most cases by actual conveyance through the lymphatic stream. He felt inclined to divide the recurrent fibroid tumours into two classes, viz., those recurring at short intervals, and becoming more malignant each time, and those recurring at ever-lengthening intervals, with less evidence each time of any malignant properties.

Dr Wyllie said that one fact had struck him in examining the axillary and pleural growths obtained at the post-mortem examination of Professor Spence's first case, namely, that they were not identical in structure with the former tumours as described by Sir James Paget and Dr Haldane. The tumours examined by them were "spindle-celled sarcomata," whereas those he obtained were simply ordinary connective tissue, with an immense number of nuclei, just like connective tissue actively growing. In fact, it was precisely similar to the connective tissue which he had found in the ovary of a girl who had died from "mitral stenosis" during her first menstruation. As to malignancy and recurrence, and the distinction drawn between malignant and recurrent tumours, he held that recurrence was a proof of malignancy. All malignant tumours are apt to recur. He believed that the one great characteristic of malignant tumours was their power of infecting near and distant parts. Local recurrence he believed to be the consequence of some mysterious infection of the tissues in the immediate neighbourhood of the tumour, and he regarded the appearance of secondary growths in distant parts as merely another manifestation of the same infective power, the infecting material, whatever it might be, being conveyed to these parts by the lymphatics or bloodvessels.

Professor Spence had unfortunately not heard much of what had been said in regard to malignancy. He thought that the cachexia in all the stages of malignant tumours was more of a characteristic than recurrence. In the late Professor Goodsir's case, the cachexia was evident to the practised eye, although the patient was unaware of it. In malignant tumours the recurrence was rapid, and never after twenty years. The fact of a patient living forty years after the first occurrence of a tumour was evidence of anything but malignancy.

Dr Matthews Duncan had never seen such a case as that given by Professor Spence, although he had seen many hundreds of malignant tumours. He therefore only spoke to express his entire disagreement with him in regard to there being any such special thing as "malignant cachexia." There was no difference between it and some other forms of depraved health. Some women even when dying from cancer had no signs of such cachexia. He therefore looked on it as no diagnostic of malignancy at all.

Professor Spence, whilst sorry to disagree with Dr Matthews Duncan, must repeat that a very long and large experience had shown him that the indications of conditions which subsequently culminated in cachexia, could be detected in cases of malignant disease at a comparatively early stage by the practised eye, if carefully looked for.

VII. *Dr Foulis* then read a paper entitled CONTRIBUTIONS TO THE PATHOLOGY OF THE OVARY.

After a short statement of the views of Waldeyer on the development of the Graafian follicles and cells of the membrana granulosa, in which he laid stress on the fact, that whereas Waldeyer's investigations showed that both the cells of the membrana granulosa and eggs were derived from the germ epithelium on the surface of the ovary, his own investigations appeared to show that the eggs alone were derived from the germ epithelium, and the cells of the membrana granulosa were derived from connective tissue corpuscles of the stroma of the ovary. Having this fact as a basis for investigating the origin of cystic tumours of the ovary, Dr Foulis then stated that, as the result of numerous observations on the origin of cysts in the diseased ovary, he was able to demonstrate that, though many of the cysts of an ordinary cystic tumour of the ovary were simply over-distended Graafian follicles in the walls separating these, there was a growth of new cysts quite unconnected with pre-existing Graafian follicles, which might go on to an unlimited extent, and that the epithelium of these was produced from connective tissue corpuscles. He then drew attention to the very interesting fact that, in addition to the production of the epithelium of the cysts, the connective tissue corpuscles of the stroma, by general and excessive proliferation, might give rise to sarcomatous growths in the ovary; and that, through the escape of epithelial elements from the diseased stroma and cysts into the peritoneal cavity, secondary sarcomatous growths might arise on the peritoneum, which, by constant irritation, resulting in the pouring out of ascitic fluid, ultimately exhaust the patient. Dr Foulis again showed drawings of the little masses of sprouting cells which he had discovered in ascitic fluids surrounding ovarian tumours, and by the presence of which he had diagnosed malignant ovarian tumour and peritonitis in the two cases whose histories had been already given to the Society; and he now gave short notes of three additional cases in which he had discovered the same little masses of sprouting cells in ascitic fluid, and in two of these cases a post-mortem examination verified the diagnosis made during life, viz., malignant ovarian tumour and peritonitis. The third case is that of a woman still alive, and in the ascitic fluid present an enormous quantity of the little masses of sprouting cells were found.

During the last year we have now had five cases, in which, during life, a diagnosis of malignant ovarian tumour and peritonitis was made, on finding, in the ascitic fluid present, numerous little masses of sprouting cells; and in four of these cases an examination after death verified the diagnosis.

It is a fact of great importance, that ovarian tumours of a malignant kind are generally surrounded with ascitic fluid, and if the ascitic fluid is tinged with blood this circumstance is a very suspicious one. Ascitic fluids should always be carefully examined with the microscope. Often we are able to tell that some of the cysts of an ovarian tumour have burst, by finding in the ascitic fluid simple ovarian epithelial cells. It is, unfortunately, too true that a patient with a large malignant ovarian tumour may appear in excellent health, being quite bright and cheerful, and showing no signs externally of internal malignant disease. No cachexia may be discernible, and yet, on examining the deposit of the ascitic fluid, one may find in it crowds of little masses of sprouting cells, and after death a large tumour of a sarcomatous nature, adherent in the pelvis, and secondary sarcomatous growths on the peritoneum, may be found. Although it is true that malignant ovarian tumours are generally surrounded with ascitic fluid, it is not true that all ovarian tumours surrounded with ascitic fluid are malignant. Hence the necessity for careful examination of the deposit from the ascitic fluids in all cases. It has been stated by some observers, that an examination of fluids obtained from the cysts of an ovarian tumour by tapping, will often inform us if the tumour is malignant; but I beg to call attention to the fact, that most malignant tumours of the ovary are semi-solid, and it is seldom that a cyst sufficiently large for tapping is found in these cases. It is to the ascitic fluid that we must look for help in cases of doubt.

It remains for future observation to settle the question, whether little masses of sprouting cells are ever found in ascitic fluids surrounding other malignant tumours, say of the omentum, peritoneum, etc., structures in which fibrous connective tissue exists in quantity; and I take this opportunity of asking medical gentlemen to examine ascitic fluids with the microscope in all cases, both of men and women, with a view to settle the question.

The *President* said that the present communication was one of great interest. Most of the members would remember Dr Foulis's former paper on this same subject, and the important pathological facts brought forward.

[In the unavoidable absence of Professor Laycock, the members of the Society had, by his kindness, the opportunity of examining a most characteristic case of tubercular leprosy in a young man, a Eurasian. A more detailed account of this interesting case will appear in a future number of this Journal.]

ANNUAL MEETING OF THE FORFARSHIRE MEDICAL ASSOCIATION.—The seventeenth annual meeting of the Forfarshire Medical Association was held in the White Hart Hotel, Arbroath—Dr Dewar, Arbroath, President of the Association, in the Chair. The following members were also present:—Drs Geo. Wannan, Dd. Arrott, Findlay, Munro, Crichton, and W. Wannan, Arbroath; S. Lawrence, Howden, and Key, Montrose; Simpson, Marykirk; Mackie, jun., and A. Lawrence, Brechin; Paton, Letham; Arrott, Christie, Allan, and Duncan, Dundee. The minutes of last annual meeting and subsequent meetings of Council were read and approved of, as were also the Treasurer's accounts. It was resolved to take no action in the matter of the proposed Scottish Medical Association. The resolution unanimously adopted at last year's meeting, that all visits sent in after 10 A.M. and requiring to be attended to the same day should be charged at an extra rate, was again confirmed, and ordered to be advertised in all the papers published in the county. On the motion of Dr S. Lawrence, it was agreed that the Association petition the Home Secretary for the release of Mrs Marsden, at present undergoing imprisonment on the charge of homicide by infection. Montrose was fixed on as the place of meeting for next year, and the following gentlemen were appointed office-bearers:—President, Dr S. Lawrence, Montrose; Vice-Presidents, Dr Howden, Montrose; Dr Nimmo, Dundee; Hon. Secretary—Dr Duncan; Treasurer—Dr Campbell; Council—Drs Arrott, Christie, Miller, Maclagan, MacEwan, and Small.

The President, Dr Dewar, then read an able paper "On recent changes in Therapeutics," in which he touched on many of the most important advances in medicine and surgery introduced within the last fifteen or twenty years—such as the subcutaneous mode of administration of morphia and other remedies, the treatment of epilepsy by bromide of potassium, the use of chloral in delirium tremens and puerperal convulsions, the antiseptic treatment of wounds, etc. A short discussion ensued, and, on the motion of Dr Christie, the thanks of the meeting were accorded to Dr Dewar for his paper, and a wish expressed that it should be published. The members afterwards dined together.

Part Fourth.

PERISCOPE.

Dermatitis Circumscripta Herpetiformis.—Under the above name Neumann describes a form of skin disease which has been hitherto overlooked. It begins by a small pale red eruption, bluish-white in the centre, whence the redness and infiltration spread towards the periphery, but this so slowly, that in a period of several months it has only attained the size of a sixpence. Both on the smaller and larger eruptions are to be seen pointed spots, bluish at first, and after they have lasted some time, changing to a dull white. The affected parts reach the size of a half-crown, and it is on their periphery that these spots are most distinct, the centre being of a more uniform red. On pinching a fold of the affected skin, it is found to be considerably thicker than the surrounding healthy skin. The eruptions remain sometimes isolated, are sometimes confluent; sometimes their boundaries so come in contact that a gyrated form of eruption results, the central parts of which either show the white spots, or are uniformly red and covered with scales. The white spots are very similar to the vesicles of eczema on the palm and sole, when the exudation has not yet raised or burst the epidermis.

With the duration of the disease, the mass of scales increases considerably. On some parts of the skin they form hard and thick layers of squams, which are in firm contact by their under surface, and which by their removal bring to light an excoriated thickened portion of skin. This extent of infiltration and squamous accumulation is not constant.

After having lasted several months the infiltration diminishes, and after it has disappeared, there remain darkly pigmented spots or points. If left to itself the disease may last for years, spreading by new eruptions, whilst the parts first affected recover spontaneously, the thickened skin becoming gradually thinner. The scales separate and leave a soft pigmented surface, which has not a cicatricial appearance, and the itching, which is very violent while the disease lasts, completely disappears.

It is distinguished from psoriasis by the white points on the periphery, by the firmness with which the scales adhere, and by their leaving no bleeding surface when scratched off, and by the violent itching; from herpes tonsurans (tinea circinata), by the infiltration in the centre, the long duration of the eruption, and the absence of fungous elements.

Rubbing with soap, and painting the surface with tar, remove the disease.—*Archiv f. Dermatologie u. Syphilis*, 1875, 1 Heft.

PETTENKOFER. *Is Drinking Water a Source of Typhoid Epidemics?* (*Zeitschr. f. Biologie*, 1874).—In reference to the doctrine of the spreading of typhoid by drinking water, Pettenkofer supplies the following facts in regard to Munich. It has never been possible in that town to connect the dissemination of typhoid with district wells, or to show that any one well was a source of infection. On the contrary, the disease has always spread through the different quarters of the town without any demonstrable relation to the water-supply. Nor has it been possible, in times when typhoid was prevalent or absent, to find corresponding differences in the quality of the drinking water as a whole, or of that of single wells in particular. In the year 1865, a large part of Munich was provided with a new water-supply, whose sources are in a district which is quite free from typhoid. In the following winter a violent typhoid epidemic broke out, which raged equally in the quarters supplied from the new source and from the old wells. Just as little, in the following year, which was unusually free from typhoid, could any difference in the comparative immunity be made out in favour of any part of the town.—*From the Centralblatt*, No. 23, 1875.

FRANZ HOFMANN. *The Formation of Vesical Calculi through Foreign Bodies in the Bladder* (*Archiv der Heilkunde*, 1874).—Calculi from the bladder of rams were remarkable for their softness, and contained, in 100 parts of the fresh stone, 86·84 per cent. water, and 13·11 per cent. solid matter, which was composed of 4·97 phosphoric acid, 0·84 lime, 2·82 magnesia. When dried, the stones floated in water. When treated with acetic acid, a substratum remained, which was found to consist of masses of spermatozoa. The sperma must have passed into the bladder, and by the deposit of salts from the urine, have thickened into a cemented mass.—*From the Centralblatt*, No. 30, 1875.

F. WEBER. *Influence of Different Antisyphilitic Remedies on the Pregnancies of Syphilitic Women* (*Allg. Med. Central Zeit.*, 1875).—The following results were ascertained in 129 cases, of which, however, 20 were of simple uncomplicated gonorrhœa. In 20 per cent. the pregnancy did not reach its full term, being most frequently interrupted by premature birth in the seventh and eighth month. Of these children the most died soon after birth. The most favourable results were obtained by the inunction cure. Of 35 women so treated, every one went on to the full time. Of 23 women who were treated by a combination of inunction and iodide of potassium, or who, on account of constitutional debility, were treated partly by inunction and partly by iodide of potassium, 20 per cent. aborted. By iodide of potassium and bichloride of mercury 15 per cent., by iodide alone 36 per cent., aborted, or were prematurely confined. After inunction cure alone, the women all made a good recovery; after the other modes of treatment the results were more or less unfavourable.—*From the Centralblatt*, No. 31, 1875.

IODOFORM IN CHRONIC SUPPURATION OF THE MIDDLE EAR.—Before using the iodoform, which should be in a finely powdered state, it is of course essential to see that all secretion shall have been thoroughly removed from the middle ear, and the parts well dried with cotton on a holder. The instrument I have used for blowing in the iodoform, is an insufflator similar to that used for the throat, with only this difference, that the tube, instead of being curved, is straight. Frank H. Rankin, M.D., Assistant-Surgeon to the Manhattan Eye and Ear Hospital, etc.—*New York Medical Journal*, May 1875.

In the *Gazette des Hôpitaux* for February 1875, there is an interesting case recorded by M. Valette of the Hotel-Dieu, Lyons. A labourer was brought into the hospital with the symptoms of strangulated hernia; constipation, bilious and fæcal vomiting, gaseous distention of the abdomen, clammy sweats, small frequent pulse, facies hippocratica, etc. On careful examination, the cause was discovered to be the lodgment of the right testicle in the inguinal canal. Leeches, etc., were applied over the swelling, and purgatives administered, but no relief was obtained till several free evacuations had taken place from the bowels. A remarkable feature of the case was an absence of pain in the testicle itself, which contrasted with the great sensibility of the abdomen. After the patient's recovery, he stated that the testicle frequently occupied the inguinal orifice, but usually descended into the scrotum. In order to prevent the recurrence of such an accident as occasioned the man's coming to the hospital, M. Valette tried to retain the testicle in its proper place by a bandage. This caused considerable pain, therefore M. V. determined to remove the testicle, as he feared that a second attack might endanger life. He was guided to this conclusion very much by Mr Curling's statements as to his experience in similar cases. Fearing, however, lest, by the continuity between the tunica vaginalis and peritoneum, the operation of castration might be dangerous by causing peritonitis, he determined to remove the organ by caustic process. Accordingly, after an incision which laid bare the neck of the testicle, and showed a direct communication between the abdomen and tunica vaginalis, he applied the caustic forceps or pincers. These were removed on the fourth day, and cicatrization was complete on the twentieth day. The patient recovered without a bad symptom. After removal, the testicle seemed to the naked eye perfectly healthy, but under the microscope the seminal fluid showed few spermatozoids, and these were immobile. The central cells and seminiferous tubes were more granular than usual.

M. V. thinks that in such cases the symptoms resembling strangulated hernia arise from a "pseudo-strangulation caused by a reflex intestinal paralysis." He founds this upon M. Heurot's statement that there are two reflex actions in the intestines, "the one producing nervement (muscular contraction), the other evidenced by a paralysis."

M. V. recommends that in cases like the above, the removal of the testicle should be performed at once.

In the *Berliner Klinische Wochenschrift*, No. 45, 1874, a remarkable case is recorded of what is called "dislocation of the penis," the exact nature of the injury not having been discovered till after the patient had been nearly a month under treatment. The case is, shortly, as follows:—A carter, aged 57, fell from his cart, and one of the wheels passed over his body, about the region of the genitals. He came under the care of Dr Moldenhauer of Solingen, who found the scrotum and neighbourhood a mass of extravasated blood, and the penis apparently completely torn off. Dr M. attempted to pass a catheter, but failed. Nothing more was done. The patient passed a good night. Next morning the scrotum was distended by urine after the patient had attempted to pass water. An incision was made, and the urine and extravasated blood evacuated. After this various attempts were made unsuccessfully to pass a catheter. An abscess subsequently formed under the pubes, and was opened. The patient passed water freely and easily by both incisions. It then occurred to Dr Moldenhauer to unite the two openings, and, perhaps, cut into the urethra near the bulb. On attempting this proceeding he discovered the penis quite entire, lying jammed back against the abdominal wall. A catheter was easily passed into the bladder, and revealed the urethra quite intact. The patient could make water quite easily, and therefore refused to have any further operative interference. The penis was left therefore adhering to the abdominal wall by the prepuce. The enormous wound healed very slowly, and a year after the injury a dense hard mass remained. The patient could make water freely, and still stoutly refused to permit any operative procedure.

ALTERNATE HEMIPLEGIA.—M. Perroud (*Lyon Médical*), after referring to the original labours of M. Gubler, in the clinical elucidation of this phenomenon, points out, that though Gubler drew attention more particularly to it as affecting the facial nerve (portio dura) of one side and the opposite side of the body, yet it is obvious that any lesion of the parts on the inferior surface of the brain, in the vicinity of the apparent origins of the different cranial nerves, may give rise to paralysis of one cranial nerve and opposite-sided hemiplegia;—in this manner you may have the third, fourth, sixth, seventh, or ninth nerves affected. He goes on to say that cases in which the third and sixth nerves are affected are not uncommon, but he thinks them sufficiently limited in number to give interest to his cases, in which the common oculo-motor nerves were paralyzed. He publishes four cases of his own—in all there was paralysis of one common oculo-motor nerve and opposite-sided hemiplegia. In the first case dissection showed red softening of one crus, implicating the corresponding third nerve; in the next two cases recovery took place; in the last there was softening of one hemisphere, and a tumour in the opposite orbit, with no lesion at the base of the brain. He adds the summaries of eleven cases which he has collected from the journals. In seven, similar symptoms were found on autopsy to be associated with a lesion of one crus cerebri; in three no autopsy was made; in the remaining one the lesion consisted of tuberculous tumours in the base of the crus, above the pons varolii, and the symptoms presented during life were paralysis agitans and facial paralysis on one side, with falling of the eyelid and contraction of the pupil on the other.

BROWN-SÉQUARD, after having practised often very deep cauterizations on the cerebral lobes of guinea-pigs, observed a sort of paralysis on the same side; the paw could be lifted, but when resting on the ground the toes were separated from one another, and there was inaptitude in the performance of all the movements. He attributes it to paralysis of the muscular sense on the side corresponding to the lesion.—*Progrès Médical.*

M. PETRES (*Progrès Médical*) gives the following account of the processes by which the circulation is re-established in veins occluded by thrombosis:—

In the first few days following obliteration the vasa vasorum dilate, the lining membrane of the vein thickens by proliferation of its elements, forming round the periphery of the clot a sheath of embryonic connective tissue, into which the vaso vasorum send numerous capillary prolongations. During this time the clot itself becomes atrophied and disintegrated, the red corpuscles lose their colouring matter, becoming yellow and granular. As the newly-formed tissue advances towards the centre of the lumen of the vessel, it replaces the disintegrated clot until the latter is entirely absorbed, and the occlusion is maintained by the new formation. This new formation may then undergo two distinct kinds of change —(*a*) fibrous organization common in arteries, and less so in veins, or (*b*) cavernous metamorphosis common in veins. This cavernous metamorphosis is the result of the incessant dilatation of the new vessels traversing the embryonic tissue, and the contraction and absorption of the partitions which separate them, until they unite to form a few voluminous canals, and at last into one common cavity. All the different stages of this process may be noticed at one time in the same thrombus.

LACTATION OF NEW-BORN INFANTS.—M. de Sinety (*Progrès Médical*), in a paper read before the Society of Biology at Paris, refers to the mammary secretion of new-born children. He differs from Kölliker, in believing that it is, in spite of some differences, essentially similar to what takes place in the adult. He says, if we examine the mamma of a child still-born at term, we find the ducts terminating in club-shaped extremities, lined by a single layer of spheroidal epithelium; the cavities contain free fatty molecules and colostrum corpuscles. This appearance is not constant; the whole length of the duct at term being often still choked with epithelial masses; while in other cases at eight months the cavity at the extremities is nearly formed. He says, notwithstanding the differences between the infant and adult glands, he sees in them only a question of quantity. Doubtless, the nursing adult's mamma contains many more acini and a larger secreting surface, but the epithelium and its product are the same, as both the microscope and chemical analysis testify. He always found the liver infiltrated with fat in children whose mammæ secreted milk, but does not feel able to say whether the fact has any significance, the children being fed on milk; he never found sugar in the urine of any of them. He refers to a case of precocious lactation in a primipara, who aborted in the second month; her breasts contained colostrum, and after six days secreted milk having all the characters of normal milk; ten days after, although lessened, the secretion continued, and he does not doubt that she would have made a good nurse.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal*.]

COMPARATIVE PHARMACOLOGY.—In an interesting address delivered by Dr James Ross before the Manchester Club of Aberdeen Medical Graduates, and published in the *British Medical*

Journal, 20th February, that gentleman alludes to many important therapeutic laws and facts, to most of which attention has been directed in former Reports. We will here briefly quote one or two of the more pointed and weighty passages in Dr Ross's communication. Dr Ross independently enunciated the law, which was originally defined by M. Coze of Strasbourg, that like will gather to like, and where an agent cannot find its like, it will select that part of the body which is most similar to it. In this way we find that the compounds of the chemical agents, which have massive atoms, act principally upon the dense parts of the body, whilst those of the least massive atoms act upon the parts of the body which have a delicate structure, such as muscle and brain, and probably also upon the blood. We know that the salts of iodine, mercury, silver, lead, and of the metals generally, act upon the bones, tendons, and cellular tissue; those of potash and soda upon muscle; those of carbon and the gaseous elements, principally upon nervous tissue. This also explains why the compounds of the elements having massive atoms are eliminated by the bowels, those of the elements with atoms of medium mass by the kidneys, and volatile substances principally by the lungs and partly by the skin. At the recent meeting of the British Medical Association at Norwich, Dr Ross proposed, in a paper "On the Action of Mercury," two laws of the action of medicines. The first is, that, other things being equal, the more massive the atom of the element the more definite and local will be the action of its compounds; and the second, that, other things being equal, the greater the molecular mobility of an agent, the more general and diffused will be its action. These laws frequently coincide, yet the one is not the converse of the other. Mercury, for instance, is an element with massive atoms, hence the action of its compound should be local and specific; but it possesses great molecular mobility since it volatilizes at ordinary temperature, hence it should exercise a wide and diffused action on the organism. Reference to observed facts shows, that although the action of mercurial compounds is specific, yet it is of wide extent.

A comparison of the action of the various alcohols suggests to the mind the operation of another law. The monatomic saturated alcohols are poisonous, the diatomic alcohols or glycols are less poisonous, the triatomic alcohols or glycerines have a still less effect; and when we come to the tetratomic, pentatomic, and hexatomic alcohols, we obtain substances which are either inert or are foods. This may be an example of the law that, other things being equal, the more heterogeneous a substance is to the body the greater will be its effect. The hexatomic alcohols or glucocides are homogeneous with the body, and therefore will act as food; while the monatomic alcohols are both physically and chemically more heterogeneous to the body than any of the intermediate alcohols. The reason why the hexatomic alcohols act as foods while the alcohols with saturated radicals act as poisons, is probably that the former are less stable than the latter, and consequently undergo with readiness transformations within the body whereby force of some kind is evolved. A more or less parallel fact may be noticed with respect to inorganic substances. The elements which are classed as irritants are, as a rule, either univalent or bivalent; while the substances called tonics are generally either trivalent or some higher degree of atomicity. This law has a sufficient number of exceptions to show that the irritant or tonic properties must depend on other conditions than the atomicity of the agents. Another law is that, other things being equal, the greater the molecular mobility of an agent, the sooner it gains entrance into the body through the absorbing surfaces, and the sooner it is eliminated. This law explains why nitrous oxide gas acts more rapidly, but more evanescently, than ether, and ether than chloroform, and chloroform than chloral. Closely related to, although not the converse of, this law is the one that the compounds of the elements with massive atoms are relatively long in gaining entrance into the circulation through the absorbing surfaces, and are correspondingly long in being eliminated; and when the agents form, like the metallic salts, stable compounds with albumen, the length of time before they are eliminated is much increased. Another law is that, all things being equal, in binary compounds both elements are represented in the effect produced, but the action of the heavier atomed element will predominate. Take, for instance, chloride of potassium, bromide of potassium, and iodide of potassium. In the first, the action of both elements is represented, but that of the potassium predominates; in the second, the action of the bromine predominates, but when an animal is poisoned by bromide of potassium, the action of a potash salt upon the heart is apparent; while in the third the action of the iodine largely predominates. The action of this law may be traced through compounds of a higher grade than the binary. When, however, an agent produces a very energetic effect, such as hydrocyanic acid, it makes its influence predominate even in composition with the more massive atomed elements. We can promise a rich harvest to any one who will have the patience to differentiate by experiment the physiological action of the various chemical groups of organic compounds, and who will then contrast with each other the actions of the groups themselves; such as that of the hydrocarbons, alcohols, ethers, acids, aldehydes, ketones amines, and amides, and passing through the remarkable bases—the chinoline and pyridine series—to the natural alkaloids.

NITRITE OF AMYL.—W. Filehne argues against the supposition that nitrate of amyl exerts a *direct* action on the vessels. We cannot thus explain the limitation of the area of vascular dilatation. If the vessels are directly affected, those of the lungs ought to be most dilated; but this Filehne has experimentally proved is not the case. He has shown, by an ingenious experiment, that this drug acts, not on the vessels or nerves, but on the nerve centres (*Pfluger's Archiv*, ix. 470). Filehne attributes the blushing caused by inhalation of nitrite of amyl to paralysis of a centre in the brain which presides over a definite vascular area, and assigns as the cause of the quickening of the pulse a temporary paralysis of the vagus. Solger obtained brilliant results with nitrite of amyl in the treatment of certain forms of epilepsy and loss of consciousness. In the case of an adult subject to epileptic fits, ushered in by an aura in the right leg, inhalation of the nitrite of amyl, as soon as the aura was felt, invariably prevented the subsequent loss of consciousness and convulsions. Solger found the action of this drug in vertigo to be capricious. Jastrowitz finds it of use in the treatment of asthenia, but of no avail in melancholia. The fact that there is no visible change in the bloodvessels of the optic disc convinces him that the dilatation of the arteries is confined to particular regions of the brain. Sander has also had experience of the utility of nitrite of amyl in asthenia, and he corroborates the statements of other authors as to its uselessness in cases of epilepsy not preceded by an aura, and in psychoses. Schüller observed that the dilatation of the arteries of the pia mater is succeeded by contraction, and this may explain the circumstance that symptoms of collapse occasionally follow the inhalation of the drug (*Berliner Klinische Wochenschrift*, 15th February). In an interesting paper in the *Philadelphia Medical Times*, Dr S. Weir Mitchell, who was one of the first to employ nitrite of amyl, says that the cases of epilepsy in which it is beneficial are those which are preceded by an aura, and those in which the patient has a succession of fits within a limited space of time. In few cases does it lessen the tendency to the return of the fits. Dr James M'Bride (*Chicago Journal of Nervous and Mental Diseases*, April) assumes that epilepsy depends on a condition of cerebral anæmia induced by spasmodic contraction of the arteries of the brain, and that, as nitrite of amyl causes distension of the brain-vessels, it is indicated in this disease. He confirms the statement that it is in cases in which the aura is decidedly marked that the drug is most beneficial. He cautions us against employing nitrite of amyl in spurious forms of epilepsy and convulsions depending on congestions of the brain. In the treatment of melancholia with nitrite of amyl, Schramm obtains *temporary* favourable results. Whether the drug acts beneficially in such cases by dilating the brain-vessels, or by a direct influence on the composition of the blood, is uncertain. It is only applicable in the treatment of mild cases of melancholia, and it is not yet clear whether such cases are more easily influenced when associated with anæmia or plethora. The favourable effects of the treatment become weaker by repetition, but after an interval the drug acts as at first (*Archiv für Psychiatrie*, Band v. Heft 2). In the treatment of puerperal eclampsia, nitrite of amyl has been successfully employed so far back as 1872 by Dr Jenks, and later by Dr Hinton, who records his case in the *Medical and Surgical Reporter*, 14th Nov. 1874. Dr Mary Putnam-Jacobi gives the history of three cases of severe spasmodic dysmenorrhœa, which were relieved by inhalation of amyl-nitrite. Dr Sell has also obtained good results, but he gives it by the mouth in drop doses in a drachm of peppermint-water, repeated every half hour (*New York Medical Journal*, 2d Jan.).

Dr W. H. Forrest records, in the *New York Medical Journal* for February, a case of very acute gastralgia successfully treated by administration by the mouth of nitrite of amyl in a dose of 2½ minims. The spasm was cut short, and did not return for twenty-four hours, when it was again quelled with 3½ minims. Its recurrence subsequently was very slight. From some experiments mentioned in a brief note in the *British Medical Journal*, 19th June, by Dr W. Munro, it would appear that nitrite of amyl and chloroform are to some extent antagonistic, one relieving the effects of the other.

DIGITALIS IN BRONCHITIS.—Dr James Braithwaite claims as the best treatment in certain cases of neglected bronchitis free administration of digitalis with compound spirit of ammonia. He gives 10 minims of the tincture of digitalis every two hours. Dr Braithwaite holds that in these cases the heart is at fault, the right ventricle being unable to propel the blood through the lungs.—*British Medical Journal*, 10th April.

DIGITALIS IN PERITONITIS AND DIPHTHERIA.—Dr John Haddon, writing in the *Practitioner* for April, relates a case of peritonitis and diphtheria, in which the administration of digitaltis was followed by very marked benefit.

DIGITALIS AND ERGOT AS VASO-CONTRACTORS.—Dr A. S. Myrtle recently read an interesting paper on this subject before the Leeds and West Riding Medico-Chirurgical Society (*Medical Record*, 9th and 16th June). He very properly calls attention to the fact that medicines which act through the vaso-motors show their influence after very few doses; nor can their action be prolonged for any length of time, for under any circumstance dilated vessels, after a lapse of a certain period, have a tendency to contract, and, contracted, to dilate. Hence no good need be looked for by the long-continued exhibition of such medicines. Dr Crichton Brown gives four doses as a limitation.

HYPODERMIC INJECTION OF ERGOTIN IN PURPURA HÆMORRHAGICA.—After the first injection of a grain of ergotin under the skin of the arm, the profuse vomiting of blood ceased; and after the third injection, the small spots on the skin disappeared. The patient ultimately made a perfect recovery. Dr A. K. Minich, who treated the case, regards this disease as being due to vaso-motor paralysis, and he believes the ergot acts by causing contraction of the capillaries, and by inducing vaso-motor spasm.—*Philadelphia Medical Times*, 8th May.

Dr Angelo Cianciosi also records a case of purpura hæmorrhagica successfully treated by hypodermic injection of ergotin. After the third injection the hæmorrhage was arrested, and did not reappear. Recovery was rapid.—*L'Independente*, March.

HYPODERMIC INJECTION OF MORPHIA.—The 1000 experiments of M. Chouppe on himself would go to prove that morphia exercises a decided local effect. He finds that the injection of morphia at the site of pain produces the anæsthetic effect two or two and a half minutes sooner than when elsewhere injected. A weak solution (1 in 150) produces pain, whereas a strong solution (1 in 50 or 1 in 30) is painless.—*Gazette Médicale de Paris*, No. 35, 1874.

HYPODERMIC INJECTION OF STRYCHNIA IN DIPHTHERITIC PARALYSIS.—Dr Acker uses a solution containing two per cent. In within four weeks three-fourths of a grain was injected in one of the cases recorded. Dr Acker is convinced of the efficacy of this mode of treatment.—*Deutsches Archiv für Klinische Medicin*, 1874.

STRYCHNIA AS AN ANTIDOTE TO ALCOHOL.—Dr Morey of Gilroy, U.S., has recently sent to the *Chicago Medical Journal* an account of a strychnia-eater which is so marvellous as to have given rise to widespread comment, and even, in some quarters, incredulity. Dr Morey reports that on one occasion the individual in question took about 20 grains after a debauch, and "in an hour he was all right and sober as ever"! In every instance when he took it, every symptom of dissipation would disappear in a short time. Dr Morey writes:—"I have experimented with strychnia and nux vomica as an antidote to the effects of alcohol, and invariably with beneficial results."

STRYCHNIA AND MONOBROMIDE OF CAMPHOR.—In the *Siglo Medico*, 18th April, Dr Valenti y Vivo records as the result of his experiments that monobromide of camphor acts as an antidote to strychnia. He would give from from 4 to 6 grammes of the monobromide in small doses.

STRYCHNIA AND HYDRATE OF CHLORAL.—Dr Charteris, of Glasgow, reports in the *Lancet*, 10th April, a case in which a man, having taken four grains of strychnia, was successfully treated with hydrate of chloral. In this Journal for April, Dr Ogilvie Will also reports a case. A lad, aged 18, took with suicidal intent not less than four grains, and was cured with the hydrate of chloral.

JABORANDI.—In a former Report, we alluded at some length to this interesting drug; we have now to refer to some additional observations which have since been published. A paper by Mr W. Gerrard, in the *Pharmaceutical Journal*, 1st May, describes his method of extracting the alkaloid, which he terms "pilocarpine." The following is an abstract of the process he recommends:—Prepare a soft extract of the leaf or bark with fifty per cent. of alcohol. Digest this with water, filter, and wash. Evaporate the filtrate to a soft extract, add ammonia cautiously in slight excess. Shake well with chloroform, separate the chloroform solution, and allow it to evaporate,—the residue is the alkaloid. Mr Gerrard has succeeded in obtaining crystals of the nitrate and hydrochlorate of pilocarpine.—*Pharmaceutical Journal*, 5th June.

In Germany, jaborandi has been the subject of experiment, especially by Riegel, Lohrisch, and Penzoldt. Lohrisch affirms that a decoction of the bark is much more active than that of the leaves. The wood and pith have no therapeutic action. Nothing is known of the action of the root and other parts. This observer found that the secretion of saliva would sometimes suddenly change from normal alkalinity to an acid reaction, and would then again become alkaline. He also observed that the three salivary glands contributed to the flow. Penzoldt is of opinion that the salivation and secreting are nearly always simultaneous, but in one case the salivation occurred first. Lohrisch believes that the salivation always occurs first, and lasts longer than the sweating. According to Penzoldt, jaborandi will induce salivation as readily when administered by the rectum as when given by the mouth. The bodily temperature is but slightly affected by jaborandi, but the pulse is considerably affected, the sphygmographic tracings taken by Riegel indicating relaxation of the arterial walls and increased cardiac force. The urine is not affected, but the bronchial secretion is sometimes increased.

Professor Sydney Ringer and Mr W. Murrell contribute to the *British Medical Journal*, 24th April, a paper detailing the results of ninety-four additional observations. Mr Langley finds that jaborandi reduces the frequency of the heart's action in animals, but Professor Ringer has not found this to be the case with man. On two occasions in which headache and pain over the pubis were severe, 1-100th grain of atropia was injected hypodermically, and in a few minutes the pain ceased. In all the experiments the authors employed a tincture, a drachm of which corresponds to 30 grains of the drug. This was given in doses of 2 or sometimes 3 drachms.

M. Robin (*Gazette Médicale*) observes that when the effects of hypersecretion exerted by jaborandi fail, or are diminished, compensatory phenomena of two orders take place. One set consists of extreme thirst and variable appetite; another set consists of vomiting and purging. To avoid vomiting, jaborandi should be given fasting, and the saliva which is secreted should not be swallowed. Vomiting only occurs when sweating is not established. Diarrhœa is frequent, and usually occurs before the sweating commences; it is of no importance, and ceases in the course of a few hours, when the drug is discharged from the system.

At the meeting of the Société de Therapeutique, 10th March, M. Crequy communicated details of a case of severe pleuritic effusion which resisted purgatives, diuretics, blisters, etc., but which rapidly and completely yielded to jaborandi in doses of 75 grains. M. Dujardin-Beaumetz recommends that when jaborandi induces vomiting, it should be given in the form of enemata. (*Bulletin Général de Therapeutique*, 30th March.)

Professor Drasche records the results of his numerous experiments with serronia jaborandi (*Zeitschrift, d. Allgemenien österreichischen Apotheker-Verein*, May). He uses an infusion, a tincture and an alkaloid, which he terms serronine. About 1½ grains of this alkaloid is yielded by a drachm of the leaves. All these preparations cause profuse sweating and salivation, and physiological symptoms analogous to those produced by the genus pilocarpus. It is probable that the serronia jaborandi is a piperaceous plant.

Part Fifth.

MEDICAL NEWS.

GENERAL MEDICAL COUNCIL.

The following is a condensed report of some of the more important and interesting of the proceedings of the General Medical Council, held at their House, Oxford Street, London, W., in Session 1875.

Thursday, June 17, 1875.

Dr Acland, *President*, took the chair at 2 P.M.

New Member of Council.—Dr Rolleston, the new representative of the University of Oxford in the room of Dr Acland, was introduced and took his seat.

President's Address.—The President delivered an address, and alluded in the following terms to changes and past work:—

"At the last session of the Medical Council a review of the work of the Council was made by our late President. The absence of Dr Paget from the chair and from the Council is felt by us all as a grave loss. There was something in the gentle wisdom of that sterling man which gave us the confidence we feel when crossing slippery paths with a sure-footed mountain guide. Only one change has taken place in the Council since we parted. Oxford sends us no stranger in one who brings, from the sister University to that which Paget adorns, mature experience for our common duties. Only a third of the members of the Council who formed it in 1858 remain. Not half, therefore, know how great is the change which has come over the opinions of the medical profession since eighteen representatives of nineteen Universities and Corporations, all distinct, some in admitted rivalry, met six nominees of the Crown as representatives of the public at large, and proceeded to construct a sound and uniform system of medical education, general, scientific, and professional. It is well known in the Council, how rapidly, though silently, the promotion of the general good superseded solicitude for particular interests, and how soon the arduous task of harmonizing diversities in national sentiment, of seeking the good in every existing system, of purging the evil from every usage, however time-honoured, became the aim of every member of the Council."

The President then alluded to medical legislation at present before Parliament, and to the visitations of examinations which had been conducted at many of the universities and medical schools. He discussed the position, past, present, and future, of sanitary officers, analysts, and midwives; the great subjects of preliminary and professional education; and ended in the following terms:—

"And now I have performed, as simply as I am able, the honourable task which you have in your goodness imposed on me, of opening a new session of the Medical Council. I ask of you that which you will certainly grant, your support, as I endeavour to second your efforts. Our hope is, by the agency of ancient and progressive institutions, to make medical education uniformly adequate through the whole kingdom; to bring former experience into harmony with the lessons of true culture and modern science; and to provide, as far as human agency can provide, a constant supply of persons qualified to promote the individual and the public health in a nation, whose destiny calls her children to every form of human labour, in all climates, and under every condition of life."

At the conclusion of the address, Dr Andrew Wood moved, Dr Risdon Bennett seconded, and it was unanimously resolved, that the address be entered on the minutes.

The rest of the day was taken up in narrating the results of correspondence with the Registrar-General; and in considering the results of examinations, and the remarks of examining bodies on the reports of the visitors.

The following were the recommendations approved of by the Council, which had been forwarded to the Registrar General:—

"1. It is objectionable that medical men should be required by law to give information which they do not possess from personal knowledge. 2. The words '*as I am informed*' should be printed in the body of the certificate after the word '*died.*' The marginal note should then stand thus:—Should the medical attendant feel justified in taking upon himself the responsibility of certifying the fact of death, he may strike out the words 'as I am informed.' 3. The medical attendant ought not to have the duty imposed upon him of sending to the Registrar or to any one else. The Registrar should apply to him. 4. In Scotland, the Registrar forwards to the medical attendant a certificate, with the blanks filled up as far as possible, with a stamped envelope addressed to himself (the Registrar), if the certificate has not been forwarded by the attendant within ten days. This plan works admirably. 5. In the form of death-certificate, the words '*whose apparent age was*' should be substituted for '*whose age was stated to be.*' 6. In case of alleged irregularities or frauds in respect of certificates, the Registrar-General or the magistrates, and not the Medical Council, should be prosecutors. 7. In the column 'the duration of disease,' there should be four divisions, for years, months, days, and hours, as in the Scotch certificate. 8. The Registrar-General's abstracts should be gratuitously sent, as formerly was the case, to many registered practitioners—to all, indeed, who annually apply for them. Every health-officer, at the least, should have them officially. They should be kept at the office of every sanitary authority. Nor is there any reasonable doubt that statistical and sanitary science, as well as the progress of accurate medical knowledge, would be thus greatly promoted at a comparatively trifling cost to the public funds. The services of those who supply the basis of the Registration Returns would also be gracefully acknowledged. A precedent may be found in Scotland and Ireland, and formerly in England."

The names of two medical practitioners, who had been convicted of defrauding an insurance company, were removed from the Medical Register.

Friday, June 18.

A discussion took place on the motion of Dr Wood, seconded by Dr Apjohn,—"That the remarks of the licensing bodies on the reports of the visitors of the examination be taken into consideration *seriatim*."

After a somewhat lengthened discussion, Dr Andrew Wood, with the permission of the Council, withdrew his motion.

Dr Parkes moved, Dr Quain seconded, and it was resolved,—"That a Committee be appointed to consider the reports of the visitations which have been submitted to the Council, and sent down to the licensing bodies, and of the remarks of the licensing bodies upon them, and to draw up a report for the present meeting of the Council."

The Committee was appointed, to consist of Dr Parkes (Chairman), Mr Quain, Dr Apjohn, Dr Humphry, Mr Bradford, Dr Begbie, Dr Quain, and Dr Rolleston.

The report of the visitors to the Universities of Oxford, Cambridge, and Aberdeen, were then held as read and discussed, and it was moved and seconded for each University separately, that the report be sent down for consideration.

Saturday, June 19.

The report of the visitors of examinations in the University of Edinburgh was discussed.

Mr Turner, after pointing out that the term "assessor," applied by the visitors to the additional examiner, was erroneous, said it appeared from the report on the final examination for M.B. that the non-professorial examiners took an important part in the examination. The Council had now before it an account of the system pursued at the universities in regard to the matter. Of the four examiners at the Oxford examination, three were professors. At Cambridge the professorial element was not so large, but it was well represented on the board. At Durham, the first professional examination was conducted wholly by professors. At Dublin the system resembled that adopted at Edinburgh. In fact, the whole university system throughout the country appeared to be one in which the teaching element was well represented on the examining boards. With regard to the final examination at Edinburgh, the visitors had nothing to say but in the way of approval, except as to the clinical examination, with reference to which they said: "It was well conducted, as far as it went, and calculated to give a good estimate of the practical knowledge of the candidates. We think, however, that it would be an important improvement if each candidate were required to investigate, in the presence of the examiners, some one or more cases in addition to that of which he writes the report." He (Mr Turner) was not a clinical teacher, but he could not help thinking that if a candidate acquitted himself satisfactorily in regard to one selected case, it was really as good as half-a-dozen cases. On that matter, however, he bowed to the opinion of those who had larger experience.

Dr Andrew Wood called attention to a statement in one of the reports, that the examination in Midwifery was conducted entirely by Professor Simpson. If an additional examiner were present, and took no part in the examination, the principle was not carried out.

Dr Rolleston said that at Oxford continuity of examination was secured by having the Regius Professor of Medicine as supervisor; but there were no other *ex officio* examiners. The University had repeatedly appointed examiners *ab extra*. In this way, they prevented things from falling into such a groove in such a way that it might be possible for any one to publish a little work of questions for the guidance of students, as was done on the other side of the English Channel.

Dr Sharpey said that for some time the papers at the Universty of London had not been signed with the names of the candidates, but with numbers, so that a teacher did not know when he was examining the answers of his own pupil. He thought that the selection of co-examiners in Edinburgh was a very good one.

Dr Storrar remarked that the University of London was not a teaching but an examining body. It would be impossible to find examiners without appointing some who might have to examine their own pupils.

Mr Quain said that, where there was a small number to be examined, as in London and Durham, the selection of examiners was not a matter of so much consequence as in a large school, such as Edinburgh

Dr Humphry said that, when he was present at the examination in Edinburgh, there was a co-examiner, who took notes, and conferred afterwards with Professor Simpson. Referring to the report on the University of Cambridge, he said that the term "assisted" was not correct in reference to the co-examiner, who was intended to be as much an examiner as the Regius Professor. As in Oxford continuity was secured by means of the Regius Professor; but the professorial element was reduced to a minimum in the examinations, perhaps even the principle was carried to an extreme Although he had been Professor of Anatomy several years, he had only once been an examiner. He had no voice as a professor in the examinations, though he sometimes attended them.

After some remarks from Mr Macnamara, Dr Fleming, Dr Bennett, and Dr Smith, the motion was carried.

The report on the examinations at St Andrews was then discussed, and a pretty fervid discussion followed as to the worth of the St Andrews degree, and the propriety of its retaining its privilege of conferring ten annually.

Sir Dominic Corrigan thought that it should relinquish its privileges, following the example of the Archbishop of Canterbury.

Dr Fleming defended the retention of the power.

Dr Sharpey thought it unnecessary to go to the trouble and expense of visiting the examination.

Dr Humphry said the University of St Andrews did not merely grant honorary degrees, but instituted an examination by which candidates were admitted to the Medical Register; and it had a medical school at which one annus medicus could be kept. With regard to the granting of honorary degrees, the visitors felt that the privilege was one that might be exercised with advantage to the profession, but they considered that it was not exercised, the degrees conferred not being limited to distinguished men.

Sir D. Corrigan did not understand how an annus medicus could be kept at St Andrews, there being there no infirmary, no dissecting-room, no chemical laboratory, and no medical students.

Mr Turner said there were at St Andrews courses of lectures on other subjects, such as chemistry, embraced in the course of medical education. He thought that the University should retain its privilege of granting degrees, but it should make the examination a thorough testing one, and the matter should be strongly pressed upon the authorities.

Dr Bennett thought that if the degrees were really conferred *honoris causâ*, there could be no objection to them. But that was not the case at the present time, and he hoped that the authorities would take seriously into consideration the objection that had been made to the present system, which certainly acted in a very mischievous way.

The next report considered was that of the visitors to the Royal College of Physicians of London, in the course of which a somewhat acrimonious and almost personal discussion took place regarding defects in the clinical examination, and in the examination on Medical Jurisprudence. It ended in a vote on the apparently somewhat mild addition to the ordinary report of the following clause moved by Sir William Gull, and opposed by Dr Bennett,—"And that special consideration be requested to be given to such part as refers to the clinical examination for the licentiates, and to the deficiencies in the department of Medical Jurisprudence."

After some further remarks, the motion, with Sir William Gull's addition, was carried; 11 voting for and 10 against. Dr Bennett required that the names of those voting should be taken down. There were—*For*, Dr Rolleston, Dr Haldane, Dr A. Wood, Dr A. Smith, Dr Leet, Dr Apjohn, Sir Dominic

Corrigan, Dr Sharpey, Dr Parkes, Sir W. Gull, and Dr Stokes; *Against*, Dr Bennett, Mr Quain, Dr Humphry, Dr Pyle, Dr Storrar, Dr Fleming, Dr Thomson, Mr Macnamara, Dr Quain, and Dr Begbie. The President and Mr Turner did not vote.

The Report on the Royal College of Surgeons of England.—The report on the Primary Professional Examination for the Membership was made by Dr Fleming and Dr J. K. Barton; and that on the Second or Pass Examination by Dr Parkes, with Dr Struthers as an additional visitor.

Dr Storrar moved, and Dr Humphry seconded,—"That a copy of the report of the visitors of the examinations of the Royal College of Surgeons of England be forwarded to that College for their consideration and remarks;" when, after a few remarks by Sir W. Gull, Mr Quain, and Dr Storrar, the discussion was adjourned.

Monday, June 21.

The discussion on the Report of the Visitors to the Royal College of Surgeons of England was resumed. After a pretty long discussion, Sir William Gull moved, and Dr Andrew Wood seconded,—"That attention be drawn to the incompleteness of the physiological part of the examinations, and deficiency of the clinical examinations for the membership; also to the total want of any examination in chemistry and materia medica, though these subjects are in the curriculum."

After several other members had spoken, Sir William Gull's motion was then put to the vote and lost, 8 voting for and 12 against it.

King and Queen's College of Physicians in Ireland.—The report on the examination of this body was made by Dr Risdon Bennett, member of Council, and Mr William Stokes, visitor appointed by the Council.

Dr Bennett moved, Dr Quain seconded, and it was resolved,—"That a copy of the report of the visitors of the examinations of the King and Queen's College of Physicians in Ireland be forwarded to that College for their consideration and remarks."

The motion was carried.

Apothecaries' Hall of Ireland.—The visitors of the examinations were Dr Risdon Bennett and Mr William Stokes.

Dr Storrar moved, and Dr Pyle seconded,—"That a copy of the report of the visitors of the examinations of the Apothecaries' Hall, Dublin, be forwarded," which was agreed to after a discussion.

Tuesday, June 22.

After returns from the Medical Department of the Army were presented, Mr Macnamara moved,—"That, in the opinion of this Council, all examinations on anatomy should, as far as practicable, include the performance by each candidate of actual dissections; and that all those on surgery should include the performance by each candidate of two or more operations on the dead subject;" and supported the motion in what seems to have been a telling speech, after which, Dr Pyle seconded the motion.

Dr Rolleston agreed with Mr Macnamara in principle. The members of the Council were at one as to the importance of practical examination. He would suggest, however, that candidates should understand that they would be liable to be called on to dissect, and perform operations. He moved as an amendment, and Dr Thomson seconded,—"That it is desirable that candidates in examinations in anatomy should understand that they may be called upon to perform actual dissections, and that candidates in examinations in surgery should understand that they may be called upon to perform one or more operations on the dead subject."

The amendment was carried *nem. con.*, Mr Macnamara having expressed his approval of it.

Wednesday, June 23.

A great part of the time of the meeting was occupied on this day with the discussion, in committee, of the reports of the visitors on the Universities of

Dublin and of Durham, regarding both of which the ordinary resolutions were passed.

The Council having resumed, the adoption of the proceedings of the Committee was proposed and carried; an amendment moved by Dr Allen Thomson, to withhold approval from the resolution calling the attention of the Royal College of Physicians of London to certain defects, being lost.

Letters were read from Miss Jex Blake and two other ladies, on the subject of the admission of women to the medical profession; from Mr A. T. Norton, regarding the medical school for women in London; and from Dr G. E. Shuttleworth, advocating the registration of foreign degrees obtained by practitioners already registered.

The proceedings on Thursday, Friday, and Saturday (24th, 25th, and 26th), were almost exclusively devoted to the question of admission of women into the profession, introduced to the Council by the following letter from Mr Simon:—"Medical Department, Privy Council Office, 8th June 1875.—Sir, —I am directed by the Lord President to request that, at the meeting now shortly to be held of the General Medical Council, you will have the goodness to bring under the consideration of that body the bill which has been introduced into the House of Commons by Mr Cowper-Temple 'to amend the Medical Act, 1858, so far as relates to the registration of women who have taken the degree of Doctor of Medicine in a foreign university,' and that you will move the Medical Council to favour his Grace with their observations upon it. It appears to the Lord President that Mr Cowper-Temple's bill, though very limited in its direct scope, can hardly fail to raise in Parliament the general question whether women ought to be able to look to medical practice, or certain branches of it, as open to them equally with men as a profession and means of livelihood. And I am to say that, as Government may have to express an opinion on this general question, with regard, on the one hand, to women who desire to obtain legal status as medical practitioners in this country, and, on the other hand, to the examination rules, or other conditions, which prevent them from accomplishing their wish, his Grace would be glad that the observations with which the Medical Council may favour him should not be restricted to the particular proposal of Mr Cowper-Temple's bill, but should discuss, as fully as the Medical Council may see fit, the object to which that proposal would contribute.—I am, Sir, your obedient servant, JOHN SIMON."

After a long discussion as to whether the Council should enter into the merits of the question at all, a report in answer to Mr Simon's letter was discussed, paragraph by paragraph. Many racy and amusing speeches seem to have been made by Sir Dominic Corrigan, Dr Andrew Wood, Dr Humphry, and Dr Rolleston. Numerous votes were taken, and in the end, the answer to Mr Simon seems to have been in terms more favourable to the cause of female education in medicine than might have been expected from so conservative a body.

A short discussion on Visitations of Examinations and the Conjoint Scheme, concluded the business of the session.

DINNER TO DR LOWE.—Dr Lowe, the President of the Edinburgh College of Physicians, was on 13th June entertained to dinner by a large party of his professional and other friends: the occasion for the demonstration being the fact that Dr Lowe is about to leave Edinburgh. Sir Robert Christison was in the chair; and a number of the leading members of the profession were present. The chairman, in proposing the toast of the evening, assured Dr Lowe that, wherever he might take up his abode for the future, he would carry with him the warmest wishes for his welfare of the numerous friends he had left behind him in Edinburgh.

PRESENTATION TO DR MUNGALL OF COWDENBEATH.—On 22d June, Dr Mungall, who has for the last twenty years gone through at Cowdenbeath an immense amount of hard work, was presented at a public dinner with a handsome testimonial, consisting of a carriage, horse, harness, epergne, and a purse of sovereigns. The dinner was a marked success, the attendance being large and the enthusiasm great.

ERRATUM.—For "corn" read "horn," in Mr Chiene's remarks at the Medico-Chirurgical Society, at page 73 of the Journal for July, second line from bottom.

OBITUARY.

PROFESSOR OSWALD HOME BELL, of St Andrews.—Few men will be more missed and none more truly mourned than Oswald Bell. Dying of a painful and lingering disease, while scarcely in his prime, leaving a career of much usefulness and honour, in which he was universally beloved and esteemed, his removal is one of those mysteries which we cannot understand, and yet dare not question. In the period of less than twenty years he had worked at St Andrews, he had made himself known, and was universally consulted in the east of Fife. He had worked a Chair which might have been almost a sinecure in the most conscientious manner. As Dean of the Medical Faculty, he was most kind and courteous. But it is at the bedside that he will be most missed and mourned, for few men had such a hold on the affections and gratitude of their patients, as, by his patience, gentleness, and skill, Oswald Bell had gained.

DR HENDERSON, AUCHINBLAE, FORDOUN.—This medical practitioner, much esteemed and respected in the district where he has enjoyed an extensive practice for half a century, died there on the morning of Thursday, 3d June, his death being the result of a fall from his horse on the evening of the previous Sunday, while on his way to visit a patient a few miles from home. Dr Henderson was a native of Fife, and served an apprenticeship to Dr Goodsir, the father of the late celebrated Edinburgh professor of that name. He received the diploma of the Royal College of Surgeons, Edinburgh, in 1824, and settled in the village of Auchinblae, in the parish of Fordoun, Kincardineshire, in the early part of the following year. In this extensive country district, the Doctor laboured unremittingly and with much acceptance, for the long period of fifty years; and, when overtaken by the sad accident which resulted in his death, was still able for a large amount of work—even unseasonable work—although in his seventieth year. When seen by his friend Dr Johnston, Kair, within an hour of the accident, the condition of shock was so intense that death seemed imminent. He was able to whisper in slowly articulated words, that he had got his death-blow—that his neck was broken. The state of collapse was extreme, but reaction came about, and death did not occur until eighty-four hours after the receipt of injury. Paralysis, both of motion and sensation, was complete and instantaneous below the seat of injury. Although there was considerable pain on slight pressure over the fifth and sixth cervical vertebræ, neither crepitus nor displacement could be detected. The suddenness and completeness of the paralysis would therefore indicate laceration of the cord in that situation.

Although a modest and retiring man, and never wishful to be heard of beyond the immediate circle of his friends and patients, Dr Henderson, about eighteen years ago, accidentally and unwillingly engrossed a large share of attention in the eyes of his professional brethren, being the chief actor in what was known at the time as "the Fordoun case." On this occasion, the Parochial Board dismissed him from the office of Surgeon, because, along with his son, an advanced medical student, he made a post-mortem examination of the body of a pauper without what the Board was pleased to call proper authority. However, as many will remember, the indignant protest of almost the entire medical profession in Scotland, aided by the generous assistance tendered by the press, both general and professional, served to reinstate him in his position, and stand in the way of his being made a victim to a species of oppression which need not be characterized here. Previous to this summary dismissal, Dr Henderson had served the Board conscientiously and continuously for more than thirty years, and for the first twenty years he did not receive for his professional services half as many guineas. Few, except medical practitioners and their households, can form any just estimate of the labour, privation of comfort, and self-abnegation involved in an extensive country practice of fifty years' duration. Dr Henderson performed this work, and he did it faithfully and well; meeting with death in the discharge of duty. No better eulogium can be carved on the monument of any man than that he thus lived and died.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

SIR,—In your June number, under the heading of "Medico-Chirurgical Society of Edinburgh," an account is given of the exhibition of pathological specimens. Among these was part of a thorax shown by my friend Dr Watson, which had been experimented on by him to illustrate the division of a rib with an ordinary table-knife. I agree with Dr Watson that the experiment is "interesting in a medico-legal point of view;" but I can assure him that it had no such effect on the public prosecutor as he would have us to believe.

The medical witnesses for the Crown allowed the possibility of the wound of the chest and the division of the rib having been of accidental origin; but, at the same time, they regarded it as exceedingly improbable that a woman falling her own height, and coming accidentally against a knife held in the husband's hand, should receive such injuries.

Dr Watson is of opinion that his evidence "led the prosecutor for the Crown to withdraw the charge of murder, and only press that of culpable homicide." So far from this being the case, after Dr Watson had been in the witness-box, the prisoner *twice* proffered the plea of culpable homicide, and this was done at the instigation of his counsel and agents, who had a shrewd notion how the case was progressing.

Had Dr Watson's evidence had the weight he attaches to it, the prisoner would have been discharged as "not guilty," as an accidental death of the kind spoken of by Dr Watson involves no criminality. In addition, in Scotland, we have the convenient verdict of "not proven," and, had the Jury been in doubt, the prisoner would have had the benefit of it, and been discharged from the bar.

As it was, he was of a low type of intelligence, of intemperate habits, and, on the night of the murder, was besotted with drink; and I happen to know that both the Judge and the public prosecutor thought it possible that the prisoner, at the time of inflicting the fatal injuries, was so beside himself with liquor as hardly to know what he was doing. Hence, though with some hesitation, the plea of culpable homicide was accepted by the Crown, and the prisoner was then sentenced to *fifteen years' penal servitude.*

The circumstantial evidence was strong against the prisoner.—I am, etc. HENRY D. LITTLEJOHN, M.D.

To the Editor of the Edinburgh Medical Journal.

DEAR SIR,—Dr Frankenhauser in 1859 was the first to point out, in a paper published in the *Monatsschrift für Geburtskunde*, as the result of a series of observations and statistics, that the pulsations of the male fœtal heart are slower than those of the female, and that by auscultation the sex of the fœtus in utero may be diagnosed. In 1868 I commenced a series of observations on this subject, the results of 61 cases being, that 40, or two-thirds, were diagnosed correctly. On proceeding to Berlin in 1872, I was enabled to prosecute this research further. Of 52 cases, the diagnosis was correct in but 23 and incorrect in 29, so that in adding the two series together, I found the comparatively large majority of the first series had fallen to but 13 in the total of the 113 cases.

Having several times remarked that fœtuses above the average weights had a lower pulse ratio—that is to say, in a case where the beats were counted at 132 per minute, a male was predicted, but at birth it proved to be a female,—it occurred to me, Might there not be a relation between the weight of the child and the pulsations of the fœtal heart? Accordingly, having obtained the weights of 81 (out of the 113 cases), I have been enabled to arrive at a conclusion. Of 48 cases where the fœtal pulsations were above the average (138 per minute), 30, or nearly two-thirds, were below the average weight (7·28 lbs. in the case of a male and 6·8 lbs. for a female). Of 33 cases where the pulsations were below the average, 21, or nearly two-thirds, were above the average weight. In other words, of the 81 cases, 51 show that there is a decided *ratio between the pulsations of the fœtal heart and the weight of the fœtus in utero.*

One more statement. The weight of the female is about 6 ounces, or 7 per cent. less than that of the male. The ratio between the weight of the child and the fœtal pulsations is about 19 beats per lb. for the male, and over 20 beats for the female. Therefore for the same pulse, a male at birth should be heavier than a female in the proportion of 20·2 to 19.—Believe me, etc.,

JAMES CUMMING.

EDINBURGH, 16*th July* 1875.

PERIODICALS RECEIVED.

American Practitioner,—June.
Annales d'Oculistique,—May, June.
Annali Universali di Medicina e Chirurgia,—May-June.
Archives Générales de Médecine,—June, July.
Archives de Physiologie,—May-July.
Archives de Tocologie,—June, July.
Australasian Medical and Surgical Review,—April.
Berliner Klin. Wochenschrift,—May 24 to July 19.
Births, Deaths, and Marriages, Monthly Return of,—May, June; Quarterly Return,—March; Supplement for 1874.
Boston Medical and Surgical Journal,—July 8.
British and Foreign Medico-Chirurgical Review,—July.
British Medical Journal,—May 29 to July 24.
Bulletin Général de Thérapeutique,—May 30 to July 15.
Detroit Review of Medicine,—July.
Druggist,—May, June.
Dublin Journal of Medical Science,—June, July.
Echo de la Presse Médicale,—May 22.
Gazette des Hôpitaux,—May 27 to July 20.
Gazette Hebdomadaire de Médecine,—May 28 to July 23.
Gazette Médicale de Paris,—May 22 to July 10.
Glasgow Medical Journal,—July.
Indian Medical Gazette,—May, June.
Journal de Thérapeutique,—May 25 to July 10.
Journal of Anatomy and Physiology,—May.
Journal of Mental Science,—July.
Klinische Monatsbläter für Augenheilkunde,—October to March.
London Medical Record,—May 26 to July 15.
Medical Press and Circular,—June 2 to July 21.
Medical Times and Gazette,—May 29 to July 24.
Medizinische Jahrbücher,—Part 2.
Melbourne Medical Record,—April 24 to May 15.
New York Medical Journal,—June, July.
Nordiskt Medicinskt Arkiv,—Sjunde Bandet, Första Häftet.
Obstetrical Journal,—June, July.
Philadelphia Medical and Surgical Reporter,—May 15 to July 10.
Philadelphia Medical Times,—May 15 to June 10.
Practitioner,—June, July.
Progrès Médical,—May 22 to July 17.
Revista Medica de Chile,—March, May.
Revue de Thérapeutique Médico-Chirurgicale,—June 1 to July 15.
Sanitarian,—June, July.
Sanitary Record,—May 29 to July 24.
Veterinary Journal,—July.
Virchow's Archiv,—May 26.
Zeitschrift für Geburtshülfe und Frauenkrankheiten,—1 Band, 1 Heft.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Demonstrations of Antiseptic Surgery, before Members of the British Medical Association, in the Operating Theatre of the Royal Infirmary, 4th and 5th August* 1875. By Joseph Lister, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.

DEMONSTRATION I.

Gentlemen,—I propose this morning and to-morrow morning to avail myself of such opportunities as happen to be at my disposal to illustrate before the British Medical Association the methods and the value of antiseptic treatment. The first case which I shall bring before you, will show this treatment in its simplest form, and in one of its most striking instances—a case in which I propose to lay open the knee-joint. The patient (a man 54 years of age) was under my care some years ago, with a very large effusion under the deltoid, in an acute form, attended with much fever. I opened it antiseptically, and the patient made a rapid recovery without suppuration. He has thus already had experience of the value of antiseptic treatment, and therefore trusts it implicitly for the management of what he at present suffers from, namely, painful effusion into the knee-joint. It is of twelve months' duration, and has resisted repeated blistering (about a dozen have been applied in all), and from the peculiar prominence that exists over parts of the articulation, I suspect suppuration is imminent. Now, if blistering failed in a case of this kind, without antiseptic management the surgeon would be at a loss what to do. Dieulafoy's aspirator might sometimes prove serviceable, but those who have tried it must confess that they are often disappointed in consequence of the fine tube becoming blocked by portions of lymph. But by antiseptic means we are able to obtain, by incision and drainage-tube, a perfectly free exit for the fluid, and thus relieving the joint altogether from the tension due to effusion, permit the natural tendency to recovery to come into operation. I need hardly remark, that to do this without antiseptic treatment would be madness—would be a thing which no surgeon would be justified in doing; to make a free incision into the knee-joint and to keep the wound open with a drainage-tube, would be an altogether unwarrantable procedure. We all know that the knee-joint has often been opened by free incision for the extraction of loose cartilages, and that in some such cases, the wound having healed by first intention, all has gone on well without any antiseptic treatment at all; though we know also that this is a very uncertain and dangerous practice. But though it is true that wounds of joints, whether accidental or intentional, may heal without disturbance under ordinary treatment, yet it is certain, that if such wounds were kept open without antiseptic means, disastrous consequences would be inevitable; by keeping the wound open we should take away the only chance there would be, without antiseptic treatment, of the case ending without disaster. But, Gentlemen, paradoxical as it may at first appear, with antiseptic treatment the more free the wound, and the more widely it gapes, the more certain you are to avoid inflammatory disturbance in the joint; simply for this reason, that you are the more certain of a free discharge of the plasma effused into the interior. And if you avoid all tension from this cause, and at the same time exclude putrefactive mischief, you have the joint left absolutely free from irritation. Before we bring the patient in, I may say that I shall make the incision pretty free as regards the skin, and carry it gradually down to the joint, so as to be able to see and secure any small artery that may be divided. For if you simply plunge the knife into the joint, and put in a drainage-tube, bleeding may take place into the articulation from some deep vessel, and lead to considerable inconvenience. Just as in Professor Andrew Buchanan's well-known experiment, hydrocele fluid is made to coagulate by the addition of a little serum from a blood-clot, so if a very little blood finds its way into the knee-joint, the liquor sanguinis effused from the synovial surface mixing with the globulin of the red corpuscles forms a coagulable fluid and undergoes coagulation, and you have the knee-joint filled with solid matter, which interferes with the rapidity of recovery, although in due time the accumulation disappears by absorption.

[The patient being now brought in, Mr Lister proceeded.] Here, then, we have before us the distended knee-joint. You observe this peculiar limited special bulging, which, together with the history, makes me suspect that the joint is on the eve of suppuration.

I have said that this case will be an example of the antiseptic treatment in its simplest form. The antiseptic will not be introduced into the joint; it will not be applied to the affected part at all. It will be merely employed externally to prevent the access of septic mischief while we provide exit for fluid from the interior. We shall first purify the skin with a strong (1 to 20) watery solution of carbolic acid, which is best for detergent purposes; water holding carbolic acid but slightly, and very readily giving it up to act upon anything else. Carbolic acid has a remarkable penetrating property. It blends with oily substances and animal matters, and penetrates the hair and hair-follicles, and therefore such a washing as I am now giving will render the skin absolutely pure, surgically speaking. This is a very great point.

In the next place, we shall have an antiseptic atmosphere provided by means of this spray-producer, which acts on the principle of Siegle's steam inhaler. High-pressure steam, issuing by a minute orifice from a boiler heated by spirit-lamp or gas, sucks up a strong solution of carbolic acid by a tube that dips into a vessel containing it, and, blending with it in about equal quantity, forms a 1 to 40 spray. We have lately very much improved our spray by a slight alteration of the apparatus. We used to have the tube which conveys the carbolic solution perpendicular to that for the steam, just as the air-tube is at right angles with the water-tube in the common atmospheric odorator; and the result was a coarse spray with scattering drops, consuming a needless quantity of the solution, and causing needless irritation of the surgeon's hands and wetting of his sleeves; and, what was of more moment, inducing unnecessary irritation of the wound, and making around the trustworthy spray an area of uncertain extent completely valueless, because the solution in it was in the form of comparatively large drops with intervals of unaltered air. But, by placing the tube for the solution at an angle of 45° with that for the steam, and with its point ground off obliquely so as to be exactly in the axis of the steam-tube, we get a spray destitute of scattering drops, perfectly trustworthy throughout its visible extent, though little coarser than a London fog.

The slate on which I am now directing the spray is in an antiseptic atmosphere; yet so fine is the spray, that it scarcely moistens the surface. The face of one of my dressers is now enveloped by the cloud, which, as you observe, is capable of being inhaled without serious inconvenience. That we should be able to provide a respirable, yet reliably antiseptic atmosphere, is what I confess I never anticipated. The boiler has a safety-valve to prevent explosion, and a window to enable you to see when the water is becoming exhausted. A large spray-producer like this will go on working, with one supply of water in the boiler, for a couple of hours.

The part to be operated upon, then, being in an antiseptic atmosphere, if the finger is to be introduced into the wound (and I shall very likely have to pass my finger into the joint) you must take special care that it is an aseptic finger; and this is done by cleansing it with an antiseptic solution, making sure that it passes well into the folds of skin about the nail. And if I should have to introduce an instrument into the articulation, I must see that it is always pure when inserted. In order, Gentlemen, that you may get satisfactory results with this sort of treatment, you must be able to see with your mental eye the septic ferments as distinctly as we see flies or other insects with the corporeal eye. If you can really see them in this distinct way with your intellectual eye, you can be properly on your guard against them; if you do not so see them, you will be constantly liable to relax in your precautions. I have seen, for instance, a gentleman, anxious to carry out the antiseptic treatment completely, take out a large loose cartilage from the knee-joint under the spray, using at the outset instruments which had been purified by lying in a solution of carbolic acid; but in the course of the operation, I observed him take a pair of forceps which seemed better adapted for his purpose than any which he had so prepared, and simply dip them for an instant into the antiseptic lotion, and then plunge them into the interior of the joint. Now, Gentlemen, was that doing the treatment justice? Between the teeth of those forceps there were probably portions of dirt. Give the carbolic acid lotion time, and it would penetrate this dirt, greasy though it might be; but it cannot do so in a moment; and nothing was more likely than that some portion of this dirt would come off from the forceps, and remain in the joint, and induce putrefaction there. I have known of a gentleman with every anxiety to carry out antiseptic treatment, exploring the wound in a case of fracture of the skull, and, the probe happening to fall to the ground, it was taken up from the dusty floor, and immediately passed into the depths of the wound. Now, Gentlemen, that was but courting failure. What more likely than that some of the septic dust, which certainly was brought up adhering to the bloody probe, should pass into the wound without having been sufficiently acted on by the spray in the moment of transit, and, mingling with the blood in the interior, be there protected for the future by the blood-clots from the antiseptic influence of the dressings, and induce putrefaction? If we could see the septic material upon the instrument as distinctly as we could see green paint in contrast with the red blood, then of course we should say, We must wash off this green poison; but because we cannot see it with the physical eye, we are always liable to make mistakes through neglect of using proper precautions; and I am more and more persuaded, the longer I practise antiseptic surgery, that the chief essential to success is a thorough conviction of the reality of the presence of the septic matter on all objects in the world around us. Through the kindness of the President of the Physiological Section, I hope to have the opportunity of demonstrating some facts which I believe will tend to convince you that the septic ferments are, like those of the alcoholic fermentation, living organisms,—that they are analagous to the yeast plant. But whether you believe or do not believe that they are living, it is as certainly demonstrated scientifically as it is certain we are here, that these ferments do exist. If we do not bear that in lively remembrance, we shall be constantly making mistakes.

[Mr Lister then proceeded to perform the operation. Some small arteries, which bled in the incision, were secured with fine prepared catgut, and the joint having been opened, two drainage-tubes, each about ¼ inch in diameter, were inserted side by side; an obstructing band within the articulation being divided by a probe-pointed knife guided by the finger so as to permit them to be introduced fairly into the cavity. He commented on the various steps as he proceeded, urging again the absolute necessity of having all the instruments thoroughly aseptic, and went on to say]—One learns after a while to do these little purifications instinctively, but at first it requires thought, intelligence, and constant care, particularly to any one who has been in the habit of operating without having to attend to these minutiæ. Would that we could get rid of all complications in the system! If we could dispense with the spray, no one would rejoice more than myself; but until somebody wiser than I am can supply some better means, we must continue to use it. There is, I find, considerable thickening of the textures in the vicinity of the joint, and this is the cause of the swelling which is still apparent, though the synovial capsule is now empty. The outer orifices of the drainage-tubes are made transverse or oblique, as required, in order that they may lie flush with the surface of the skin, and when retained in this position by means of the threads which you see attached to their margins, they discharge their functions perfectly.

The operation having now been performed, the next point is so to dress the wound as to make sure that nothing septic will get in before next dressing; this must be not a matter of hope but of certainty. The material which we have used for some time past is an open cotton cloth, with the fibres impregnated with a mixture of carbolic acid and common resin.[1] Common resin holds carbolic acid with extreme tenacity, and in consequence of this gives it off so slowly as to be unirritating to the skin; yet at the temperature of the human body it furnishes a sufficient supply of the acid for a trustworthy antiseptic dressing. But at the ordinary temperature of the air in this country, the antiseptic is evolved so slowly from the gauze that the fermentative energy of septic dust is not at once extinguished by falling upon it, as it is by mingling with a strong watery solution; and if the gauze were applied dry, some active septic particle, adhering to its surface, might enter the blood or serum at the outlet of the wound, and propagate putrefaction to the interior. There was a time when I used to have occasionally in my practice putrefaction which I could not explain, but which I afterwards saw must be due to this cause, and the difficulty was then at once overcome by dipping the lowest piece of gauze in a watery solution of carbolic acid. This solution which I am now using, having been mixed with blood from the wound, has a very dirty appearance. A surgeon, who went round my wards some time since, expressed astonishment that I should use dirty lotion to wash a wound, and to purify what I was placing upon it; but, Gentlemen, the wound, although æsthetically dirty, was surgically pure, and the lotion had not been made impure by being used for washing it. Even if it had been otherwise, we might have trusted the carbolic acid to purify it. Why then should we waste good lotion? I dip, therefore, in the lotion this piece of gauze that I place next to the wound, and thus make perfectly sure that nothing septic is applied to it.

---

[1] For details regarding the composition and mode of preparation of the antiseptic gauze, see the *Lancet*, 13th March 1875.

It is most important that the spray be properly directed during the dressing. I have seen a surgeon expose a serious wound, involving injury to the brain, while the spray was only playing on the opposite side of the head. It were far better that the antiseptic method should not be employed at all than that it should be used imperfectly. For such attempts not only end in disappointment, but throw discredit on the system. Some people seem to say, "I have tried the thing and failed, and therefore, of course, the system is all nonsense." I have seen it fail in my own practice, but under such circumstances I have always thought there must have been some mistake on my part, and I have endeavoured to discover where my mistake lay. But that does not seem to be the way in which the matter is viewed by some of our professional brethren.

A small piece of gauze dipped in the lotion having been placed next the wound, the dressing on which we rely for excluding putrefaction is applied in the form of eight layers of the gauze, sufficiently broad, as you see, to cover the surrounding skin for several inches in every direction; and beneath the outermost layer is placed this piece of thin Mackintosh cloth to prevent the discharge from going directly through the dressing; because, if a considerable quantity went through, strongly as the resin holds carbolic acid, it might be all washed out before twenty-four hours had elapsed, and then putrefaction would spread inwards to the wound. The dressing is secured by a bandage, for which strips of the antiseptic gauze prove very convenient. Now, Gentlemen, we are perfectly sure, that if we have left nothing septic in the wound, we shall find no putrefaction when the dressing is changed to-morrow.

[The subsequent progress of this case has illustrated well the remarks made at the demonstration, with regard to the effects of a free opening, or the contrary, under antiseptic management. When I saw the patient on the following day, I learned that he suffered unusual pain in the afternoon after the operation, which became very severe during the night, and though somewhat less in degree at the time of my visit, was still very considerable. The temperature had risen on the previous evening to 102·4° F., and was now 101·8°. Such a state of things would at one time have alarmed me, and would have made me fear that putrefaction had occurred. This, however, I felt confident could not have been the case, and another probable explanation suggested itself. The peculiar bulging above alluded to, situated over one of the pouches of the synovial capsule beside the ligamentum patellæ, had tempted me to make the opening in that situation; but the bulging part collapsing on escape of the fluid, the only way in which I could ensure complete introduction of the drainage-tubes into the joint was by passing their ends under the ligamentum patellæ; and I thought it not unlikely that they might have been compressed, and their function so interfered with. Accordingly, on changing the dressing, I found that the gauze presented a bloody stain, which appeared sufficiently accounted for by oozing from the surface of the wound, while the joint was fully distended. And it appeared that the disturbance to which the articulation had been subjected had led to unusually rapid effusion from the synovial surface, and this being unable to escape, had produced great tension, attended with pain and fever. I at once placed him under chloroform, and made a fresh incision at the outer side of the limb into the pouch above the patella, and introduced a drainage-tube larger in diameter than the little finger, after pressing out the clear serous and fibrinous contents of the capsule. This was of course done with antiseptic precautions, and a dressing like that employed the day before was applied. The result was that almost immediately after awaking from the chloroform sleep, he felt himself entirely relieved of his pain; and not only has that which was induced by the first operation left him, but he has entirely lost that which had annoyed him for so long a period previously. The temperature in the evening was found to have fallen to 99° F., and has since remained normal, and the discharge, which has continued to be merely serous, has so diminished in quantity, that when I last saw him (15th August) I substituted a drainage-tube of medium size for the large one, and was able to direct that an interval of three days should be allowed to pass before the next dressing. I must add, that he has tested the limb, contrary to orders, by getting out of bed and resting his weight upon it, but without any of the pain which he formerly experienced on so doing. In all other respects he is in perfect health.

It happens, by a curious coincidence, that another patient requiring the same operation has since been admitted under my care in the Infirmary; a man 26 years of age, who, six days before admission, observed a painful swelling in the left knee, without assignable cause, and both pain and swelling had since steadily increased. The skin, however, was free from redness, and, subacute as the case was, I hoped that entire rest, with efficient fomentation, would relieve him. On the contrary, pain continued to increase during the next five days, while the temperature rose above 100° F.; and on the 11th inst. I introduced a large-sized drainage-tube into the joint by incision above the patella, at the outer side of the limb. With the serous fluid that escaped were mixed considerable portions of lymph, opaque, and in some parts of yellowish white colour; and these portions proved on microscopic examination to be masses of pus corpuscles; so that it was clear that the case was just passing into one of that justly-dreaded disease under ordinary treatment, suppurative synovitis. The result, as in the former case, was immediate and permanent relief from pain. His temperature next day was normal, and has remained so. The discharge, purely serous in quality, is quickly diminishing in quantity, and the patient eats and sleeps as in perfect health.]

The next patient I wish to bring before you is one who came under my care six weeks ago with an affection of the inner side of the ankle, which he attributed to a sprain two months previously, after which he had constant pain in the part, and increasing thickening of the textures. The outer side of the foot and ankle looked perfectly sound. We put up the limb in a side splint of poroplastic material, and used repeated blistering, but without any advantage; pain continued to increase, and it was evident that, if left to run its course, it would end in caries of the tarsus. I therefore, fifteen days ago, made an antiseptic incision, expecting to open a joint, but hoping that I should not find pus. To make an opening into an articulation without the presence of pus would have been, without antiseptic means, an unjustifiable proceeding; but here, as I have said, I hoped not to find suppuration, because I knew that, if the procedure were antiseptically conducted, the opening into the joint would do no harm whatever, while I should be able in all probability to get great benefit through relief of tension by free incision; and if I should find that no pus had been formed, this would make the case much more hopeful, because it would show that the disease was not so far advanced as if suppuration had already occurred. I was gratified, therefore, to find, on cutting into the soft substance, which gave very much the same sense of fluctuation, before the incision was made, as if fluid had been present, that there was no pus—nothing but inflammatory degeneration of the soft parts, the lateral ligament between the astragalus and the navicular bone being entirely disorganized, so that when the finger-nail was applied, the softened textures gave way with the utmost readiness, and the joint lay freely open before us, the cartilages happily appearing to be sound. I will now change the dressing, so that you may see the appearance of the part. While the bandage is being cut or removed, the patient, or an assistant, keeps his hand over the site of the wound, to prevent the dressing from rising *en masse*, and pumping in septic air. As I raise the folded gauze (exactly similar to that which I applied in the last case), I take care that the spray passes into the angle between it and the skin. And now, Gentlemen, I venture to say here is a novelty for such of you as have not practised antiseptic surgery. There is the blood-clot still lying in the widely gaping wound, purposely kept open by this drainage-tube, which I introduced down to the open joint when I made the incision fifteen days ago, and which has never yet been taken out.

I have not seen this wound myself since I made it. I am sometimes accused of taking a deal of unnecessary pains with my cases, and it is also said that any good results which I may get are due to my own personal care. If such were the case, Gentlemen, if I obtained better results than other surgeons by the more careful use of the same means, that would indeed be something to be proud of. But it is not so. It is simply that we are working on a new principle. Mr Rice, my house-surgeon, who was trained first as a dresser and afterwards as a clerk under me, does these things exactly as I do them myself. If I were to go away for a week, a fortnight, or a month, as far as the antiseptic element is concerned, I should feel I had left my patients in perfectly safe hands. In this particular instance, Mr Rice has had sole charge of the dressing after the first day, and here is the result. I am very glad to see, looking at the foot now for the first time for a fortnight, that the inflammatory thickening has almost entirely gone. I had of course made inquiry as to the patient's progress, and I had learned from his lips that the pain was greatly diminished, as the immediate result of the incision. I used to have a great horror of opening into the tarsal articulations in cases of this sort, in consequence of the disastrous results which I have known to occur, through the spreading of suppuration among them. But if the skin is unbroken, so that the antiseptic system can be brought fairly into operation, there is no such danger. Here there has not only been no disturbance whatever from the operation, but we have obtained the benefit that we anticipated from free incision. The inflammation which previously existed has almost, if not entirely, disappeared.

And now let me direct your attention again to this remarkable appearance of the blood-clot lying in the open wound fifteen days old. If we had not used antiseptic means, that would have been impossible. Some people say, We can show you good results without antiseptic treatment. Of course, good results can be got by good surgery without antiseptic treatment; but I say this is an instance of something that could not possibly happen without it. When a blood-clot existed in an open wound under a moist dressing which was not antiseptic, it was absolutely certain to putrefy and disappear long before the lapse of fifteen days. Let us now see what change may have taken place in this clot. I see, when I raise the upper layer of it from the edge of the wound, that there is about an eighth of an inch of cicatricial margin; yet there is no pus—there is not even any granulation. How the tissue which is thus formed in an organizing blood-clot differs histologically from that of granulations, I have not had time to investigate. But that it differs from granulations functionally is certain, and that in two ways. First, it has not nearly the same tendency to contract that granulations have; and, secondly, instead of forming pus under the influence of the very slightest stimulus, as granulations do, this tissue resembles normal textures in requiring protracted stimulation to induce it to granulate and suppurate. Now, cicatrization in an open wound without granulation is something new; it never happened in the world's history without antiseptic means.

We may now dispense with the drainage-tube in this case; and having removed it from the tubular cavity in the coagulum in which it lay, I will cut out with scissors a piece of the tube of blood-clot. You observe blood oozes freely from it. What was once blood-clot bleeds when wounded. It has become organized and vascularized up to the surface.

If there had been a dressing of carbolic gauze applied next the wound, and changed daily, we should have had a very different appearance. It seems to be a difficult thing for me to write the English language so as to make my meaning intelligible. I find the opinion still often attributed to me, that carbolic acid stops suppuration by some sort of specific agency. On the contrary, I have pointed out, from my earliest experience in the subject, that antiseptic treatment threw remarkable light upon the subject of suppuration, by showing that an antiseptic itself, while it prevented putrefaction, stimulated to suppuration; so that you have what I have termed "antiseptic suppuration," if the antiseptic continues to act upon the tissues for a certain length of time. If we had not interposed this layer of prepared oiled silk to protect the wound from the stimulating action of the carbolic acid in the gauze, we should have had a granulating and suppurating sore long ago. The blood-clot itself in its superficial layers serves as an additional protection to that which lies beneath; but if the blood-clot, which must be regarded as a kind of tissue, is stimulated by an antiseptic, its superficial parts are converted in time into granulations which suppurate. The interposition of the oiled silk "protective" shields the clot more or less completely from this stimulating agency, and, provided that you can allow a considerable period to elapse between the times of changing the dressing, so as to avoid the frequent washing of the clot with the stimulating antiseptic lotion, you may often see cicatrization proceed to its completion without any granulation occurring. In the present case, it is five days since the dressing was last changed, and it might have been left longer without risk of putrefaction, the serous oozing being so extremely trifling. [The case had been dressed four times in all during the sixteen days that had passed since the incision was made, viz., on the day immediately following the operation (which, as a rule, should always be the case), and afterwards at increasing invervals, as the serous oozing diminished. But the deepest part of the dressing, consisting of the protective and the small piece of gauze immediately over it, had been left in place from first to last, to avoid as much as possible the stimulation of the clot. I may add, in preparing this paper for the press, that the case has continued to progress well. The patient told me yesterday (16th August), that the last trace of the jerking pain which he used to feel left him on the evening of the day of demonstration; and Mr Rice informs me, that, on changing the dressing on the 14th, after an interval of six lays, he found cicatrization almost complete. We may therefore say, without much risk of mistake, that this foot has been saved from amputation by antiseptic treatment.]

The next case is one of ununited fracture in the lower part of the femur of a year's standing, in a man 36 years of age. Twelve days ago, I cut down on the outer side of the limb, a very long incision being required. Finding the fragments overlapping about an inch, I removed portions with the gouge and hammer from the posterior surface of the upper fragment and the opposing part on the anterior surface of the lower one, so as to leave two fresh osseous surfaces in apposition. Without antiseptic treatment, this would have been a very dangerous operation. The risk of pyæmia would have been so great, that, in common with most surgeons, I should have regarded such interference as unjustifiable; but I think we may venture to say that, with antiseptic treatment in its present form, all such risk may be certainly avoided. It is now twelve days since the operation. For the first few days blood and serum were effused very copiously, and we had an arrangement by means of which a large mass of gauze could be applied in considerable extent under the limb. But the time has come when it might be put up in a more permanent form. This plaster-of-Paris arrangement was applied yesterday, while the limb was kept well extended by the pulleys, the patient being under chloroform. I have here a limited space for the dressing, and therefore use a correspondingly thick mass of gauze. This you will find often a matter of importance, as in operating for strangulated hernia, where you have not much space between the wound and sources of putrefaction in the perineum. And so in the present case, the window left in the plaster-of-Paris is occupied by a very substantial mass of gauze. The discharge of the last twenty-four hours has caused, you see, merely a small brownish stain upon the gauze, the result of a slight amount of serum, tinged with the colouring matter of the blood. The ends of the wound were stitched up for about three inches at each side; those parts united by first intention, and are completely healed. The central part of the wound was left open for the orifices of three large drainage-tubes. And here again we see the persistent blood-clot. Two days ago, I took out for the first time the drainage-tubes, and they were, just as in the case you last saw, lying in tubular moulds in the coagulum. One of them was permanently removed; the other two were re-introduced after being considerably shortened by cutting portions off from the deeper ends. In taking out drainage-tubes you must be particularly careful to have the spray properly directed. For as the drainage-tube comes out, air must enter to take its place, and this air will be septic or not as the spray is not or is over the wound. Here we see the orifices of the two drainage-tubes, one of which may probably now be dispensed with altogether. As I remove them, you observe the tubular beds in which they lay. And here, as in the last case, we have as yet no suppuration whatever from the open wound.

The protective must never extend beyond the gauze; if it did so, by excluding the action of the carbolic acid it would allow putrefaction to spread in under it.

I should have liked very much to have shown you one other case, but as time does not permit this, I shall mention in brief the main points of it. The case was one of chronic inflammation of the lower part of the tibia, which had induced great thickening of the bone, attended with severe and constant pain, in a girl 18 years of age. There was a small sinus present, but scarcely any discharge. Introducing the probe, I found it pass deeply into the substance of the bone. Supposing that there might be some small exfoliation present, I proceeded to explore the bone, detaching the periosteum from the surface, and making an excavation with a gouge and hammer. I found a peculiar state of things pathologically. The chronic inflammation, instead of producing merely a softened state of the bone, had led to a conversion of the osseous texture into granulations. We operated by the bloodless method, and found these granulations almost perfectly white. I proceeded to dig these out, and got into cavity after cavity. At one time I thought the probe had gone through the posterior surface of the tibia, but it proved to have passed into another cavity in the extremely thickened bone. At last I found that the soft material at the lower part of the excavation moved when the foot was moved; or, in other words, I had opened into the ankle-joint. The result of the whole procedure was a very large and complicated cavity, and it is to the mode in which this cavity has been filled up that I wish to direct your attention. Now, I desired that this should be done by means of organizing blood-clot. If this is done it saves a great deal of time as compared with granulation and healing from the bottom, and produces a more smooth and level scar. As for a long time past I have done, I systematically placed the protective right across from one lip of the wound to the other, and then stretched the small piece of moistened gauze over, so as to keep the protective flat, in order that the blood-clot might accumulate under the protective, and so fill the wound. But we forgot to arrange the limb in proper position. It was allowed to lie resting on its posterior surface, and on changing the dressing next day I found that a large portion of the blood had drained out of the cavity. The deepest recesses of the excavation in the bone were indeed filled with clot, but a great cavity still remained. Well, there was an observation made by my colleague Mr Chiene not long since that gave me a hint as to how to do in this case. He observed that, having systematically arranged for the formation of blood-clot in a hollow wound, a portion of the blood in his case, as in mine, trickled out, and the blood-clot only partially filled the wound. After the lapse of sixteen days, Mr Chiene proceeded to ascertain by scratching with the point of a knife whether the blood-clot was organized. He found it was, for blood was effused from the vessels of the tissue into which it had become converted. Dressing was applied as before; and the remarkable thing is, that this secondary blood-clot, formed on the top of the first, became also organized like the first, producing living vascularized tissue level with the surface of the skin.[1] That observation gave me the hint how to deal with this case; for it showed that if the blood-clot is insufficient in the first instance, we may supplement it by letting fresh blood into it at a later period; and if the secondary clot became organized in Mr Chiene's case, though formed so late as sixteen days after the operation, still more might such an occurrence be expected if the second bleeding took place at an earlier period. Accordingly, three days after this operation had been performed, I took a sharp knife and made a few slight incisions in the sides of the wound. A considerable quantity of blood poured out, and the limb being kept on its outer side, to prevent it from escaping, the result is that, twenty-two days after the operation, and nineteen days after this secondary procedure, I could show you still a portion of the secondary blood-clot visible, while the greater part of it has given place to granulations. [It may be added, that the patient has lost all her pain from the time of the operation, and that here, as in the case of disease of the foot and in the ununited fracture, there has never been the faintest inflammatory flush around the open wound.]

ARTICLE II.—*A Case of Tubercular Leprosy: with a Comment.* By T. LAYCOCK, M.D., Physician in Ordinary to the Queen for Scotland, and Professor of the Practice of Physic and of Clinical Medicine in the University of Edinburgh.

I MUST in the first place acknowledge my obligation to my clinical resident, Mr Andrew S. Currie, M.B., for the care with which he has drawn up the report of this case.

Louis Gustave E., age 21, admitted to side-room of Ward I., Edinburgh Royal Infirmary, 14th May 1875. The patient is above six feet in height, and is fairly developed. He was born in Calcutta; his father is an Englishman, but his mother is of French extraction. He was suckled by his mother, but was afterwards tended by an ayah who was believed to be healthy. The patient states that as a child he was always in a miserable state of health—he had dysentery when an infant, and was always having fever and ague up till the time when he arrived in England, in June 1863; since which time the attacks have been getting gradually fewer, and now they seem to have ceased altogether. At five years old his health improved somewhat, but he still continued delicate. When eight years old he went to Rungpore on a visit to his uncle's family. (Rungpore is a native settlement, and it appears that goitre is a very common affection there, and that leprosy also occurs.) The house in which he lived there was very damp. His mother, who came for him to take him home, took very ill at Rungpore. There was no alteration in the patient's general health while there, but some sores formed on his legs which healed, and the scars left were thickened and had a brown discoloration. He arrived in England in June 1863—when he was nine years old—and then his general health began to improve, and he says he got comparatively robust. In two years and a half after his arrival in England, he observed one night while undressing that there were some dark discolorations on the back of each upper arm. He drew his parents' attention to these spots, but as they regarded them as something trivial, no further notice was taken of them till some lumps appeared on the face, which were also slightly discoloured. One of the lumps was situated at the root of the nose; another above the chin, and several on each cheek. The lumps gradually extended and enlarged. The patient observed that after an attack of ague, several of these lumps would appear, and that they would then rapidly coalesce. The legs were affected simultaneously with the face, and pretty much in the same manner, though the patient cannot be sure whether they appeared as lumps at first, or simply as discolorations. In 1867, he got very ill, and the legs swelled enormously, and he lost the use of them entirely. He was bedridden for three months before he could walk. When the legs began to recover power, they scaled, and the scales peeled off in great quantities. In 1869, he was continually getting fever and ague—suffered from pains in the legs and arms—from severe supra-orbital headache, and from pain in the eyeballs. At that time there was great weakness of vision—the patient could not see either to read or to write. The face got gradually worse, and has continued to do so since that time.

---

[1] See the Lancet, 10th July 1875.

He was now admitted into Guy's Hospital under the care of Dr Habershon. At that time the patient was losing the power of his left hand; but two years ago he gradually recovered the use of it. He observed that on sitting the muscles of the ham got contracted, and that he could not rise quickly to the erect posture. For two or three years the legs continued very weak, but they have since completely recovered.

After 1869, the general health improved greatly. In 1871, the feet began to ulcerate and a copious watery discharge constantly oozed from the sores. The patient states the discharge to have been enormous, and says he could almost have wrung his stockings when he took them off. The ulcerations got gradually worse, and Dr Habershon was consulted a second time in March 1872. The ulcers got better gradually, although they did not entirely heal, and the patient went home again in June. Towards 1873, they began to get worse again. Dr Liveing was consulted at this date; the patient went into Middlesex Hospital for two months, under the care of Dr Liveing, who has published a report of the case. The discharge while he was in the Middlesex was less than when he was in Guy's Hospital. About a month after leaving the Middlesex Hospital, the patient went to the Glasgow Infirmary, to be under the care of Dr M'Call Anderson. The ulcers on the feet healed while he was there, and they have not broken out since. The patient was subsequently under the care of Dr Duckworth of St Bartholomew's, using gurjun-oil, with good results.

When it was known what was the matter with the patient, his father wrote to Rungpore to inquire whether there was any leprosy in the district, but the uncle was not aware that the disease existed there. The relatives of the patient in Rungpore are all in perfect health. There is no hereditary history of leprosy, or of any skin affection. (The patient believes that his maternal grandmother suffered from a skin disease, and states that her legs were swollen for a considerable time before her death. This statement is contradicted, however, by a cousin who lived with the old woman to the time of her death.) The father and mother enjoy good health. There are two sisters and a brother alive and in good health. There was a sister who died at the age of four or five years of convulsions.

Patient has always been in comfortable circumstances, and has been of regular habits.

Present Condition.—The patient is a spare man, over 6 feet in height; weight, 9 stones 4 pounds. Ankles and feet swell during the day; but the swelling goes down at night. The joints of the toes are swollen, the toes distorted; and the feet are unshapely and disfigured—they bear the marks of former ulcerations. There are still traces of the indurated scars left by the ulcers which formed at Rungpore; they are situated on the inner aspect of each leg about the middle. The skin of the legs anteriorly is bronzed from a little below the tuberosity of the tibia all the way down; the discoloration extends round to the back of the leg. On passing the finger down the leg tubercles are felt here and there, and a short distance above the ankle they have coalesced and have formed a large indurated mass. There are irregular bronzed patches on both thighs, most abundant on the anterior and outer aspects. These patches are also more or less tuberculous and slightly indurated. The thenar and hypothenar eminences of the left hand are considerably atrophied, and both hands are soft and puffy. On the arms the discoloured tubercles are most abundant on the posterior and ulnar aspect; there are no tubercles on the front of the upper arm, nor on the upper part of the forearm in front. The tubercles are fewer as they are traced from the back of the forearm up the back of the upper arm. They are symmetrical on the arms, as they are also on the lower limbs. The ulnar nerves are enlarged and hardened in both arms. *The back* from the supraspinous region downwards is somewhat bronzed, though not so deeply as the limbs. The interscapular region and the spinal hollow are quite free from discoloration. There are several indurated tubercles at the lower and outer parts of the back.

In this region also the disease is perfectly symmetrical. The front of the trunk is not affected. The mammillæ and areolæ are deeply pigmented. In the neck the lower line of the bronzing is about the level of the fifth cervical vertebra; above this the neck is thick and swollen. The submaxillary region is very full and is much wrinkled, and there are several round, prominent tubercles. There are no tubercles on the back of the neck.

The face is shockingly disfigured; the mouth is open; the lips are thick, and are of a somewhat dusky hue; the nose is hideously flattened. The eyelids are thick, the eyebrows and eyelashes completely gone, and the eyes are dim. The whole face presents a well-marked leonine appearance; it is bronzed and tuberculous; the cheeks and forehead are wrinkled. Some of the tubercles in the region of the mouth have ulcerated, owing to the application of cashew-nut oil. The ulcers have healed, and are at present desquamating. There is a thick offensive discharge from the nostrils. The ears are much enlarged and thickened; the lobes are especially affected. There are deep scars of ulcerations on the posterior aspect of the lobes, those on the right ear being most marked. The hair is dark, dry, and straight.

NERVOUS SYSTEM.—I. PERIPHERAL.—(1.) *Sensory Nerves.—Subjective Sensibility.*—Sometimes suffers from pain of a rheumatic character in the knee-joints, ankles, and wrists. He complains of a considerable loss of sensibility in the feet, where there were open sores. He has a feeling of numbness in the region of distribution of the ulnar nerve, and a touch in this region gives rise to a pricking sensation.

Objective Sensibility.—Sensibility to pain is very acute on the inner aspects of both legs, and almost wanting on their outer sides. In the feet it is very much impaired. In the thighs, both on the inner and outer sides, it is very acute, the merest touch making him wince. It is normal both on the inner and outer sides of the forearms.

Tactile sense, as determined by æsthesiometer:—

Left foot, *sole*,	point of	confusion,	1⅞	inches.
„ „ dorsum,	„	„	over 3	„
Right foot, sole,	„	„	3	„
„ „ dorsum,	„	„	3	„
Left leg, inner side,	„	„	2	„
„ „ outer,	„	„	3	„
„ „ posteriorly,	„	„	over 3	„
Right leg, inner side,	„	„	3	„
„ „ outer side,	„	„	over 3	„
„ „ posteriorly,	„	„	over 3	„
Left thigh, anteriorly,	„	„	over 3	„
Right „ „	„	„	over 3	„
Left hand, posteriorly,	„	„	1¾	„

Left forearm, low down posteriorly, sensation totally absent.
„ „ in front, point of confusion, 1¼ inches.
Right „ „ „ „ 1⅛ „
„ „ immed. above wrist, „ 1½ „
„ hand, posteriorly, point of confusion, ¾ „

The tactile sense over the tubercular parts generally was either greatly impaired or quite absent. In the region of the face there is little if any impairment of the sense.

Thermal Sensibility.—Left leg. On applying a test-tube with boiling water to the tubercular part on the inner aspect of the left leg, the patient is conscious only of a prickling sensation. Generally over the tubercular parts the thermal sensibility is much impaired, or absent. Elsewhere it is normal.

Electro-Sensibility much impaired in tubercular regions; elsewhere normal.

Special Senses.—Sight.—Dr Argyll Robertson kindly examined the patient's eyes, and reports as follows:—

"*Right Eye.*—Thickening of sclerotic in lower and outer ciliary region, and with it of substance of sclerotic. Injection of sclerotic and of a few conjunctival vessels. Diffuse nebulous opacity of cornea, and, in addition, spots of dense opacity at upper and lower parts of cornea, a central horizontal band of cornea being almost free from these opaque spots. At lower and inner margin of cornea is a spot the size of a pin's head, where calcareous deposit into epithelial layer of cornea has taken place. Pupil scarcely dilated at all under the influence of atropine applied an hour previously. Careful examination reveals adhesions between iris and capsule of lens, indicating previous iritis. Owing to opacity of cornea, ophthalmoscopic examination is impossible.

"*Left Eye.*—A degree of inflammation of sclerotic, especially at outer margin of cornea, evidenced by thickening of sclerotic coat and injection of sclerotic vessels. Here also there is nebulous opacity of the cornea, but in less degree than in right eye. Opaque spots are fewer in number, and almost confined to upper and outer portion of cornea. Pupil dilated irregularly; oval; long diameter vertical. Adhesions between iris and capsule of lens. Very imperfect image of internal eye, but, as far as can be seen, appears healthy."

Other Senses.—There is no impairment of hearing, smell, or of the muscular sense. There is impairment of the sense of taste; food always appears to be very insipid.

(2.) *Motor Nerves.*—Voluntary motion is of natural vigour, but the power of the left hand is impaired as contrasted with the right. Reflex excitability is totally absent in the tuberculous parts. Electro-contractility is normal.

II. CENTRAL.—(1.) *Brain.*—Patient alleges his memory, both as to recent and former events, to be unimpaired. Intelligence is above the average. Sleeps badly, and never long at a time. Is easily wakened, and sits up in bed with a start. Is very nervous, and at times suffers from depression. At other times he is cheerful, and takes a morbid delight in entering into details of his history. His temper is very variable. As a rule he is contented, but he is sometimes very fractious, and readily imagines himself injured or slighted. He suffers occasionally from headaches—sometimes strictly supraorbital, but often affecting the whole of the frontal or fronto-parietal region.

(2.) *Spinal Cord.*—Nothing elicited either by percussion or the usual thermal tests.

Thorax.—Respiratory System.—Number of respirations averages 18 to 24. No pulmonary dyspnœa or pain. There is great huskiness of the voice, amounting almost to complete aphonia. Rhinoscopy was found to be impossible, and laryngoscopic examination was very unsatisfactory, owing to very great irritability of the throat. From the very transitory nature of the view obtained, all that could be ascertained was that the true cords had a peculiar tawny colour, and that on the right cord there was a small projecting tubercle. The ary-epiglottidean folds had a somewhat dusky hue, as had also the cushion of the epiglottis. There was a longitudinal cleft in the back part of the palate, about half an inch in length. The tonsils and uvula are deeply congested.

Percussion note is resonant all over chest. Breath sounds are feeble, but there are no accompaniments.

Circulatory System.—Pulse averages 70 to 80; is of average strength. No increase of cardiac dulness. Heart sounds normal, though distant.

Abdomen.—Digestive System.—The tongue is slightly coated, and somewhat pointed. All the papillæ are irregularly hypertrophied, the fungiform being most prominently affected. The teeth are fairly regular; their necks being imperfectly covered by the gums. The appetite is capricious—sometimes poor, at other times ravenous. Patient has observed the latter phenomenon especially before a spread of the disease. There is considerable thirst, and at times it is very great; he drinks large quantities, but is able to restrain himself in this respect. Digestion good. The bowels are sometimes regular, but generally tend to constipation. There is no increase of hepatic or splenic dulness.

Genito-urinary System.—Urine varies in amount from 80 to 114 oz.; sp. gr. about 1·20; reaction acid; albumen, ¼; trace of phosphates; no sugar; chlorides normal; urea abundant. On the day after admission, a few hyaline, and one or two granular, casts were observed.

Treatment.—Full diet, and especially as many eggs as the patient liked to take; beef-steak, chop, or roast-beef, for dinner, with bitter beer; egg, bread and butter, and bitter beer for supper; one pint of milk daily.

Medicines.—Phosphuretted cod-liver oil (gr. $\frac{1}{10}$ to ℥ss.). Tablespoonful thrice daily; to be applied externally as well.

The external use of the oil was found injurious, and cashew-nut oil was applied to the face from time to time. No strongly-marked change in the morbid conditions resulted from treatment, except, perhaps, that the face seemed to have become somewhat smoother, more especially over the left cheek.

Comment.—This case offers important matter for comment, but more especially, perhaps, as to the question whether leprosy is a communicable disease or not. When did the disease commence? The answer is difficult in all cases, and cannot be fixed in this; but that it had existed several years before it manifested diagnostic characters, is certain. There can be no doubt but that he was leprous when he had what he describes as attacks of ague. These constitute a leprous neurosis. The case originated, as is usually observed: A European lives in or visits a leprous district; no special changes in his health nor any cutaneous affections will indicate that he is infected for years after he leaves the district. The most common first result is impaired health, amounting in some cases to a cachectic condition, and then the pathognomonic signs. This insidiousness at the onset renders it remarkably difficult to determine whether the disease is contagious or not. If contagious, the poison has a singularly long latent period, for even the cachectic condition does not always occur. The case of a Frenchman is quoted who returned from Madeira (where leprosy prevailed) in good health, after living there for eight years, and who, six years after his return, suddenly manifested the disease. The case of a Dutch sailor is of the same kind, who lived ten years in Surinam, and became affected nine years after his return. A case is mentioned by Dr G. A. Hansen[1] of a Norwegian who did not manifest leprosy until after he had been fourteen years in America.

It is calculated that about fifty cases of leprosy have returned to Great Britain from leprous countries under British rule during the last few years; and, as the number will probably go on increasing, a question arises of very great social importance, whether these unfortunates can communicate the disease. Dr Gavin Milroy has lately taken up the question in two communications to the *Medical Times and Gazette* of 19th June and 17th July, and declares himself a non-contagionist. Examining the method by which he arrives at this conclusion, it is mostly by an array of negative facts. Numerous physicians report that persons have been known to live, eat, sleep, and be otherwise in the most intimate communication with lepers, and yet have not suffered.

To those well acquainted with the practical method of investigating the question of contagion, these negative facts are of no validity whatever. They have always been freely used to prove the non-contagiousness of plague, yellow fever, typhoid, and cholera, and might be as freely used with like results as to small-pox, scarlet fever, and the exanthemata in general. The real value of the facts is as to the causes of exemption. Why, being exposed to similar causes, and under like conditions of hygiene, do persons escape the disease? This is the practical question. This negative method also always tempts to special pleading to obviate the force of positive facts. Thus, Dr Milroy refers in this way to the essay by Dr G. A. Hansen (who has traced the origin of the disease to intimate leprous intercourse in several cases), and does it less than scant justice. In my judgment, this essay is a model of what such an inquiry should be, and deals accurately with positive facts and particular cases. Considering the extreme difficulty, if not the impossibility of diagnosis of the disease in the earliest stages, and remembering our entire ignorance as to the essential cause, it is only a matter of simple prudence to err on the safe side. I therefore placed the patient in a side-room, and warned the residents and students to be cautious. That it is a communicable disease seems to be most in accordance with the facts; but the specific poison has evidently a long period of latency, and requires special conditions of health for its manifest activity.

---

[1] On the Etiology of Leprosy. By G. Armauer Hansen, Assistant-Physician to the Leper Hospitals at Bergen, Norway.—*Brit. and For. Med.-Chir. Rev.*, April 1875, p. 464.

The phenomena of the case indicate very clearly the influence of the trophic system of nerves on nutrition, but it is not clear that the cause acts on the nervous system in the first instance. But perhaps a predisposing condition of that system is an essential element in causation. There are grounds for the conclusion that a morbid plastic exudation takes place along the line of the capillaries and minute vessels; and it may be that this takes place first, and in the nerves and the nerve-centres, as well as in the mucous and cutaneous tissues. Dr O. B. Bull and Dr G. A. Hansen have published a short treatise on "Leprous Diseases of the Eye," in which the anatomy of the earlier stages is given, and leads to the conclusion just stated.

Leprosy presents numerous points of relation to tubercular syphilis. These have been very clearly pointed out by Mr Erasmus Wilson in the last edition of his classic work on "Diseases of the Skin." There is one resemblance of importance, however, which my valued friend omits, and this is, that in the worst forms of syphilis, the nervous system is involved *ab initio.* This is very remarkably shown in a kind of case in which, with a hard chancre and enlarged glands, there are hardly any other pathognomonic symptoms whatever; little if any throat affection, and slight eruption. These cases seem to me to be analogous to the anæsthetic forms of leprosy, as to the eruption, for it is paresis of a certain element of the trophic nervous system which "inhibits" in the latter the *plastic* exudation that characterises the tubercular leprosy, and an effusive inflammation like pemphigus takes its place. I have observed that the worst cases of syphilitic disease of the spinal cord which have come under my care have had little or no eruption, and this probably because there was already the commencing paresis.

The cause of diphtheria has a certain analogy in its action to that of leprosy, in so far as it exercises an inexplicable influence on the spinal system. Neither kind of poison affects primarily the hemispheres or the intellect; the medulla oblongata seems to be the boundary.

It is a noticeable fact in tubercular leprosy that the skin can be acted on by irritants, and the activity of the absorbents excited. In this way tubercules can be removed. Cashew-nut evidently acted in this way in the case under notice. Long-continued friction with any irritant essential oil has the same effect. To this the benefit derived from the use of the gurjun oil is probably due. Deputy-Surgeon-General Johnston, M.D. (Madras Presidency) has recently tried fumigations of the skin with vaporized carbolic acid in union with watery vapour, and found them useful.[1]

The reason why leprosy, as it is usually seen by the physician, is incurable, is obvious. It is not merely a cutaneous disease. The plastic exudation has already invaded the nerves and nerve-centres, as well as the cutaneous tissues, while other important organs suffer a like change.. In the case under consideration, the patient had leprous Bright's disease; and it is equally certain, that sooner or later the leprous laryngeal disease will extend to the lungs, and leprous pneumonia or phthisis result.

The more frequent occurrence of leprosy in Great Britain will afford our experimental physiologists opportunities of determining whether the disease can be communicated to lower animals or not. It is, however, an inquiry, the cost of which should be borne by Government or the public. Domestic animals, like swine and cattle, would be the proper subjects of experiment, and not small animals like guineapigs and rabbits. As the animals infected by leprous products would necessarily have to be numerous, and have to be watched over a series of years, it is plain private effort cannot be available. It is hardly possible to exaggerate the importance of this question of communicability. If our returned leprous countrymen can be *foci* of contagion, and spread a disease the most incurable, most prolonged, and most distressing of any known, what an infliction upon our country will follow upon their unguarded intercourse with the healthy!

[1] Indian Medical Gazette, 2d November 1874, *et seq.*

ARTICLE III.—*Report upon Some Cases of Microcephalic Idiocy and Cretinism.* By W. W. IRELAND, M.D., Medical Superintendent of the Larbert Institution.

(*Continued from page* 120.)

IN the *Rivista Clinica di Bologna,* February 1873, Dr Antonio Valenti gives a description of the skull and brain of a microcephalic idiot, who died at the age of 19, the same as mentioned in the pamphlet of Cardona already quoted.

The brain and skull have been already described by Dr Giulio Bastianelli, in a memoir published in the *Bulletin of Medical Science of Bologna* (number for February 1859). The name of the owner of the small brain was Carlo Giuseppe Cioccio. His intelligence was of the lowest character; but it must be kept in view that he was a deaf mute. He died in the asylum at Rome, at the close of the year 1853. The brain and skull are in the museum of the Hospital S. Spirito at Rome. The annexed lithograph, which is carefully copied from the plates in the Italian journal, will be of great service to the reader in following the description. Cioccio was no more than 4 feet 6 inches in height; but, excepting the extraordinary smallness of the head, well proportioned. The skull was slightly oxycephalic; the jaws somewhat prognathous; the orbits were rather square in shape, and were situated higher up above the malar processes than usual, and not in an equal plane, for the left one was slightly higher than the right. The roof of the orbits was more arched than normal, thus invading on the space of the frontal lobes. All the sutures were open save the sagittal one, which was ossified in its posterior half, and the squamous, which was ossified throughout. Dr Valenti observes, that in the white races the coronal suture slopes backwards; whereas, in the savage races, the suture is parallel to the facial bone, thus leaving less space to the development of the frontal bone. The occipital foramen was farther back than usual. The bones of the skull were very compact, of the consistence of ivory. A great many minute details are given, but these seem the most important. The following are some of the numerous measurements furnished by Dr Valenti:—

	Millimetres.		Inches.	Lines.
Circumference, - - -	350	=	13	6
Occipito-frontal curve, taken from root of nose to posterior margin of the occipital foramen, - - -	215	=	9	7
Transverse curve, from superior border of one auditory meatus to the other, -	200	=	7	7
Longitudinal diameter, external, -	156	=	6	0
Biparietal (external) diameter, taken from middle of temporal bones, -	80	=	3	1

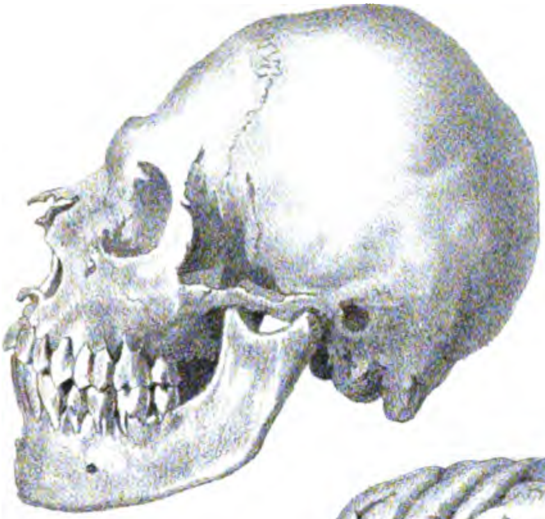
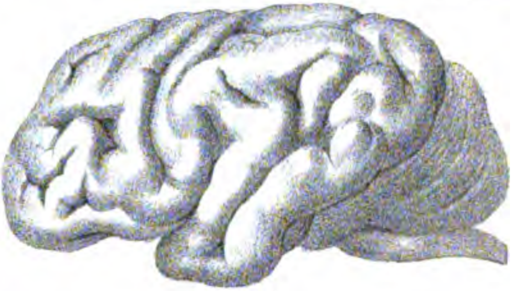


Fig I.

Fig III.



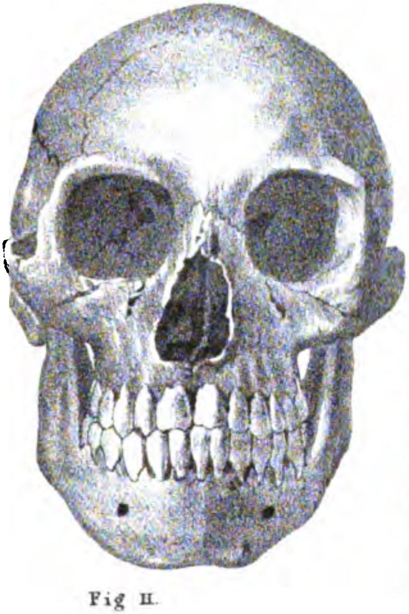
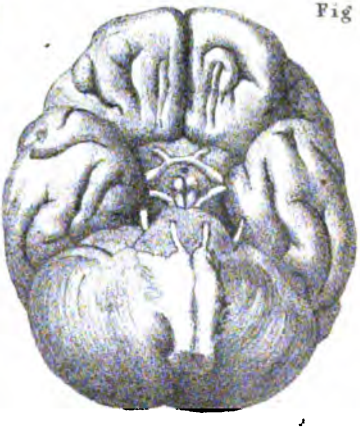


Fig II.

Fig IV.



		Millimetres.		Inches.	Lines.
Biparietal (internal) diameter, taken from middle of temporal bones,	-	76	=	2	6
Bitemporal diameter (external),	-	92	=	3	5
Internal do. do.,	-	90	=	3	4

There remains no record of the weight of the brain at death. It has now been 19 years in spirits, but the shape seems well preserved. The peculiar appearance of the optic nerves, and the four ganglia instead of the two of the corpora albicantia, in figure 4, are, I suspect, mistakes of the Italian engraver. We have not thought it needful to alter them. The most striking features of the brain are the smallness of the cerebrum compared with that of the cerebellum, and the imperfect development of the parietal and occipital lobes, as compared with that of the frontal and temporo-sphenoidal. The hemispheres are almost symmetrical; the frontal convolutions very simple. The fissure of Sylvius preserves its due length and proportion to the size of the brain, but goes obliquely, somewhat more backwards and upwards than usual, presenting an appearance similar to that in the fœtus of the seventh and eighth month in some of the anthropoid apes.

Here follows a long detailed description of the appearance of the different convolutions, as compared with the more complicated brain of normal human beings. Dr Valenti sums up thus:—

"The anatomical studies made on the distribution and development of the convolutions of this brain, have brought me to recognise a considerable degree of incomplete and imperfect organization. Letting alone the simplicity and breadth of the gyri, which make it resemble the immature brain, we find either wanting or at least defective, some of those convolutions which predominate in the human brain when organized, and form, as it were, the characteristic of that high type of brain peculiar to man. These are the lobule of the ascending parietal convolution (lobulus parietalis superior of Ecker), very poorly developed in our case. The superior bridging convolution, as we have seen, is reduced to a short and simple gyrus, still hid in the end of the lobule. The second convolution is also very defective, and the occipital lobe, and especially the gyrus occipitalis secundus, is also incomplete. It is the defective organization of these convolutions, extending from the posterior extremity of the frontal lobe, which explains the shortness of the brain of our microcephale, in those parts situated behind the fissure of Sylvius. On account of this shortness the cerebellum is left uncovered."

"The anterior lobes are certainly the best developed, but the simplicity of the convolutions which compose it, as well as their small size, render this part of the brain also defective. It is the great development of these lobes, especially in the upper frontal region, which constitutes one of the distinguishing characters of the human brain, capable of the free and complete exercise of intellectual liberty."

Dr Valenti then goes on to show that in this case the smallness of the brain could in no way depend upon the confinement of the bones of the skull, as may have been in the cases of Baillarger, of Cruveilhier, and of Vrolik of Amsterdam, in which the sutures were completely closed.

In an appendix, amongst other cases of microcephaly, we get a little more information about Antonietta Grandoni, already described by Dr Cardona. This woman died at the age of 41, of pyæmia, and there is a paper about her in the *Sperimentale* of Florence (Fasicolo 10, 1873), by Dr Adriani, which we should like much to see. The brain of Grandoni was found to be less than that of Cioccio; it weighed 289 grammes. The cerebellum was in part covered; the frontal and temporo-sphenoidal lobes were more complicated and better developed than the posterior lobes. It appears that Dr Adriani confirms the statement of Cardona as to the amount of intelligence shown by Grandoni; but whatever details of this kind are given, they are not reproduced by Valenti. This deficiency of mental analysis, as already remarked, is a common fault in descriptions of microcephalous idiots. In the description of Cioccio, though we are told that he was a deaf mute, there is not a sentence to indicate that Dr Valenti laid any stress upon the great impediment which the want of hearing must have had to the evolution of a feeble intellect—in fact, an uneducated deaf mute in many respects resembles an idiot.

It may not be here out of place to give a short account of a conversation which the writer of this report had with a microcephalous idiot, illustrating in a striking manner his peculiar mental deficiencies.

I saw him at the workhouse at Lancaster about a year ago, along with Dr Shuttleworth, Medical Superintendent of the Royal Albert Asylum. He had much of the appearance of an English labourer, being rather tall, and strongly made, with hands large but well formed. I had only one interview with him, but gained some additional information about his case from Mr Metcalfe Johnson, a medical practitioner in Lancaster. He had a sister who had also a very small head.[1] From a drawing which Mr Metcalfe Johnson had made of her, it appeared that she much resembled her brother. He always went by the name of Joe. He was 5 feet 9 inches 6 lines in height, and was 34 inches round the chest; but in measuring him we did not take off his shoes or vest. The measurements of the head were more carefully taken:—

---

[1] Mr Metcalfe Johnson gave some account of her case in a paper on the Convolutions of the Brain, which he published in the *Medical Times and Gazette*, during the year 1871.

1. Longitudinal, from glabella to occipital tubercsity, 11 inches = 27½ c.
2. Circumference, 17½ inches = 44½ c.
3. Transverse, from one tragus of ear to the other, 11 inches.
4. From tragus of ear to middle of forehead, 5 inches = 12½ c.
5. From tragus to occipital tuberosity, 3 inches 6 lines = 9½ c.

The head was cone-shaped, or oxycephalic, as Lombroso calls it; the fore part rather better developed than the occiput, though the forehead slanted rapidly backwards. He had a sallow complexion and a long red nose. The palate was not vaulted. He wanted many teeth, which he said had been "drawed out." He was said to be 45 years of age, but had no gray hairs. Until within the last eighteen months he had been able to get enough wages to maintain himself. I believe he had been sent to the workhouse on account of some violence which he had threatened or committed upon a woman with whom he lodged. In the workhouse he was a great hand at loading and wheeling a barrow. His manner was at first hesitating, as if he were afraid of being made game of, but he soon began to be more confiding, when the following conversation took place:—

Q. You are a tall fellow. How high are you?

Joe. I am eight feet. I once was taller.

Q. How long was that ago?

Joe. When I was a soldier.

Q. Were you a dragoon?

Joe. No; the cannons.

Q. The artillery. Then, were you a gunner?

Joe. No; I beats the big drum.

Q. How many men have you killed?

Joe. I broke an Irishman's back once, and buried him alive. I got half-a-crown a day for doing it.

Joe refused to give any further explanation of this exploit, which it was supposed referred to some fights between the English and Irish labourers during the construction of a railway line on which our friend worked. Joe then volunteered a piece of information which I was assured was correct:—

A gentleman once left me ten pounds; it was after he died.

Q. Were you glad he died, or sorry?

Joe. I was glad when he died.

Q. Why were you glad?

Joe. Because he went to Jesus.

Q. Would you like to go to Jesus yourself?

Joe. Yes, I would rather go to Jesus than to the other.

Q. Who is the other?

Joe (after reflecting a little). He has horns.

Q. Do you think you will go to Jesus yourself?

Joe. I thinks I will go to Jesus.

Q. Are you always good, and behave yourself?

Joe. The people sometimes teases me, and I gets in a rage. (And pointing to the governor of the workhouse, he added:) *He* tamed me. When the people makes a noise he speaks to them, and tames them.

Joe distinguished a fourpenny-bit from a sixpence. I asked him what piece of money he would like, and he replied: "Some gentlemans gives me a shilling. I keep it till I have a purse full of money." He could count his fingers, and said he had five toes on each foot; but did not seem to know much about divisions of time. He was easily puzzled, and said he did not know how many years were in a week. It will be seen that this poor creature had an intelligence, confused and superficial, but decidedly human in character. He had some notion of number, knew of a future state, and had a glimmering of moral relations. I do not know what amount of education he had received.

From a desire to keep up the unity of our Report, Dr Valenti's observations upon microcephaly have been put after those of Professor Lombroso on the same subject. We now return to the studies of the latter upon cretinism.

Professor Lombroso has made a study of twenty-three cretins, fourteen of whom were alive, and nine dead. He gives two very careful tables of measurements, but it is much easier to record the figures than to generalize the results. In one case we have a peculiarity, and in another the exaggeration of the very opposite tendency. Sometimes the stature is low; sometimes high; sometimes the head is of the normal size; sometimes it is larger than usual; at other times less. Deformities are very frequent; but they are of all kinds, so that one is inclined to believe that cretinism is owing to intoxication during the fœtal state, which sometimes accelerates and sometimes retards the development of the organism. Nevertheless, the author thinks that he can make out a ruling type, which has the following features: "The weight is generally less than usual; the colour of the skin darker; the muscular force less; there is abundance of hair on the forehead; there is irregularity in the incisors and in the production and number of the teeth; the testicles are often wanting; the ears are longer; and the face smaller."

Only in three cretins was there an approach to microcephaly. "The most constant characters, which only failed in two cases, were the horizontal position of the basilar process; in four there is no occipito-basilar angle, but a straight line. This is the opposite to what we have in the negro, in whom the basilar bone slopes more than in the white man, and different from what we have in the anthropoid apes. The basilar process in its inferior and pharyngeal surface is concave in the cretin skulls. These are appearances which are only to be seen in the lowest species of monkeys and in quadrupeds. Finally, the hard palate is flattened, as in quadrupeds or in the fœtus of the fourth month."

Some anomalies neither agree with the theory of evolution nor with that of Virchow; for example, the right orbit smaller than the left, the deficient closure of sutures, the arrest of the teeth in an infantile stage, the absence of some of them, the frequency of the Wormian bones, and all the contradictory appearances in macrocephaly and microcephaly, too early closures of the sutures, or absence of closure: these cannot be brought to support any theory. They evidently point to a fœtal affection, which strikes one or other part of the embryo now in this direction and now in a contrary one.

The theory of Virchow, that all the facial and cranial anomalies of the cretin depended upon the early ossification of the spheno-basilar suture, was not found to hold good in many cases. Two examples were noted, one 12 years old, one 48, where there were traces of the connecting cartilage. The most curious contradiction of the theory of Virchow was observed in the skull of a cretin woman of 28 years old. She had been married and had borne children. The skull was asymmetrical in shape (right parietal plagiocephaly); the sutures were not closed. The palate bones were flat, and the canines protruding. The basilar process and the occipital condyles were wanting, and their place was supplied by two plates of bone like the inferior articular processes of the atlas, but narrower, as it were traces of an atlas which had amalgamated with the occipital bone. Thus, the first vertebra alone bounded the occipital foramen, which descended in a vertical direction. Only the upper part of the clivus remained; and it is clear there could be no ossification of the spheno-basilar bone when the basilar bone itself did not exist. Lombroso's measurements, however, confirm the assertion of Virchow, that the distance from the root of the nose to the occipital foramen is much shortened in cretins.

"On the whole," says the Professor, "the most constant characters of the cretin skull seem to me to be the distance between the two orbits, the shortness of the facial and of the basilar line, prognathism, the horizontal position of the basilar process, the appearance of the occipital foramen, the want of symmetry of the cranium, the flatness of the hard palate,[1] marked brachycephaly, the abnormalities in the development and position of the teeth. Some of these characters are neither human nor anthropoid, but are met with as abnormalities or constant characters in the quadrupeds and lower monkeys. From some statistics detailed, Lombroso concludes that the "cretino-genetic miasma" lowers the standard of height in the general population of the districts where goitre and cretinism are rife.

Lombroso thinks that a greater tendency to acts of violence, extravagant behaviour, and cunning, are more common in places where cretinism abounds. Ferrus has made similar observations in

[1] This forms a good ground of distinction between cretinism and what I have called congenital idiocy, in which the palate is generally vaulted.

France, and thinks that people in localities where this form of idiocy is common are more inclined to go to law. In Switzerland, there is a proverb that stammering in the parent announces cretinism in the child. Deafness also prevails in districts where cretinism is rife. In Aosta there is a deaf mute to every 197 inhabitants; in Sondrio, one to every 365; in Alessandria, one to every 2297; and at Novara, one to every 4933. The morbific cause of cretinism is thus shown to exert its influence, not only upon individuals here and there, but upon the whole population, modifying the stature, the moral character, the prevalence of crime, the pronunciation, and the hearing; thus affording a very striking example of the modifying influences of external circumstances. Many details given by Lombroso have been passed over, though the most important conclusions have been reproduced. The following two Tables will be thought valuable by those who take an interest in the study of cretinism:—

TABLE I.

	Fontanetti, Maniacal Cretin.	Cocchi Francesco.	Male Cretin.	Panighini, Suicidal Cretin.	Cretinous Woman.	Cretinous Woman.	Cretinous Man.	Cretinous Man.	Cretinous Boy.	Angela Protti.	Magnani Maria.	Mirabello, a Cretin of 22 years.	Male Cretin of 17 years.	Cammilucci Antoni, Male Cretin of 47 years.
Age,	50	37	47	35	30	29	28	40	12	24	23	22	17	37
	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.	Met.
Height,	1·35	1·32	1·48	1·68	1·32	1·31	1·26	1·53	1·10	1·25	1·53	1·50	1·44	1·50
	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.	Kil.
Weight,	37	35	52·70	57	44	41	39	55	24	32	56	58	4 .	50
	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil	Mil.	Mil.	Mil.	Mil.
Circumference,	520	510	540	510	530	530	550	540	510	480	550	530	560	530
Antero-posterior curve,	320	540	...	360	330	320	320	300	315	330	340	330	340	330
Biauricular curve,	300	300	290	320	310	310	320	310	300	260	300	280	300	275
Breadth of forehead,	130	140	140	170	170	90	160	160	80	50	140	120	120	160
Height of forehead,	40	45	40	41	70	50	40	40	25	30	40	50	30	50
Longitudinal diameter,	190	200	200	200	175	181	188	181	177	174	190	190	195	180
Transverse,	154	155	170	165	150	154	152	154	142	155	165	152	160	148
Bimastoid,	...	145	...	165	160	160	146	150	140	136	...	142	137	137
Bizygomatic,	126	130	...	140	142	135	130	140	127	129	136	137	132	130
Fronto-mental,	134	170	200	200	175	150	175	200	165	200	185	182	135	221
Occipito-mental,	223	210	224	240	225	216	225	...	211	...	226	217	224	216
Length of ear,	55	35	63	59	...	65	71	85	...	...	65	65	61	80
Breadth of ear,	25	36	23	42	...	30	42	36	...	...	27	46	35	40
Length of arm,	230	260	300	335	128	300	295	290	195	235	380	330	300	280
„ forearm,	180	...	240	250	220	250	240	250	281	160	230	240	210	240
„ hand,	144	140	160	190	160	...	168	160	140	130	180	170	150	170
„ thumb,	50	42	70	70	...	60	50	...	54	50	57	57	45	60
„ index,	62	50	81	87	...	90	110	...	105	...	71	105	70	80
„ middle finger,	60	78	...	96	...	95	...	...	92	...	73	70	78	88
„ ring finger,	70	71	...	94	...	90	...	...	86	...	...	82	82	76
„ little finger,	50	50	...	60	...	70	...	...	68	...	72	60	57	70
„ thigh,	395	360	...	380	...	...	...	...	...	...	390	...	350	330
„ leg below knee,	340	270	...	400	...	...	...	...	...	...	390	320	330	330
„ foot,	130	120	...	235	...	...	...	...	...	...	220	230	220	215
Distance of auditory meatus to chin,	130	126	102	150	100	140	150	160	130	...	...	160	160	150
Distance to bregma,	130	120	...	160	190	190	180	180	144	...	...	161	150	190
Distance to root of nose,	128	110	116	130	130	130	120	140	121	...	115	128	132	130
Distance from nasal septum to alveolar margin,	12	15	...	14	15	21	22	...	65	...	...	19	22	20
Force with fist,	25	40	...	80	60	40	65	...	28	...	60	60	...	...
Traction force,	38	10	...	...	16	20	10	...	6	...	50	12	...	...

TABLE II.—CRANIAL MEASUREMENTS.

	Negro, 18 years old.	White Man, 8 years.	Gazzaniga, Male Cretin of 48.	Hydrocephalic Female Cretin of 48.	Cretin Female of 12.	Male Cretin.	Male Cretin of 50.	Cretin (libidinous) of 25.	Male Cretin of 38.	Male Cretin (Leva) of 36.	Cretinous Woman of 28
	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.
Circumference of the head,	490	525	520	490	440	510	480	510	520	530	495
Longitudinal curve,	340	370	350	340	320	300	320	350	355	365	344
Biauricular curve,	310	324	320	360	290	320	310	350	325	320	290
Greatest breadth of forehead,	150	164	150	145	120	103	120	140	160	160	110
Least „ „	120	120	100	95	90	50	100	115	105	120	106
Length of the frontal bone,	100	125	120	90	100	120	110	90	110	120	120
„ „ parietal „	110	144	110	100	105	133	100	105	120	140	105
„ „ occipital „	100	120	120	150	95	177	105	125	120	110	110
External longitudinal diameter,	170	186	174	150	150	176	160	164	180	188	161
„ transverse „	138	147	151	155	124	142	140	155	155	142	147
„ biparietal „	138	140	150	142	124	142	140	156	150	142	142
„ bimastoid „	127	121	150	110	91	120	100	112	130	120	105
„ frontal „	105	102	100	150	82	...	102	105	103	104	102
„ bizygomatic „	125	121	134	130	102	105	130	140	140	137	123
„ occipito-mental „	201	191	223	200	170	215	200	212	210	220	200
Distance from the root of the nose to the chin,	111	115	85	90	86	87	95	96	107	130	98
„ from occipital foramen (posterior margin) to chin,	140	120	131	131	93	157	130	135	130	141	112
„ from anterior margin of foramen to chin,	114	65	105	104	16	126	106	125	106	118	117
„ from anterior margin of foramen to exterior occipital,	40	53	31	46	45	49	50	...	52	38	...
„ from auditory meatus to root of nose,	107	98	108	90	115	101	98	105	105	102	108
„ from nasal septum to alveolar margin,	12	20	17	20	...	10	20	15	21	19	6
„ from the root of the nose to alveolar margin,	63	71	...	51	44	50	61	60	67	60	60
„ from occipital foramen (posterior margin) to lambdoid suture,	100	98	111	115	60	98	85	105	198	110	110
„ from occipital foramen to root of nose,	133	135	102	...	92	...	98	102	100	104	..
Length of palate,	54	49	51	40	38	56	48	60	54	68	50
Breadth of „	44	35	50	31	30	37	36	51	54	50	50
Vertical height of cranium,	124	134	120	128	110	121	107	100	120	100	101
Distance between the two nasal processes, or superior nasal diameter,	32	26	29	30	28	30	29	15	31	27	30
Circumference of the occipital foramen,	95	107	92	80	90	124	100	95	110	111	...
Longitudinal diameter „	38	33	32	33	30	40	34	35	41	35	21
Transverse diameter „	30	32	30	30	25	34	26	26	30	32	32
Circumference of the orbit,	120	107	110	110	100	115	120	12	10	102	111
Depth of the orbit,	56	43	...	31	39	54	46	45	52	55	54
Longitudinal diameter of the orbit,	33	39	31	35	29	28	34	32	35	35	30
Transverse „ „ „	37	36	34	35	31	38	36	40	35·40	40	36
Cranial capacity,	1130	1420	1215	1310	...	1355	1087	1160	1383	1440	1402
Orbital capacity,	45	...	...	...	...	...	44	46	...	...	...
Facial angle,	64°	72°	63°	...	...	70°	...	59°	...	52°	66°
Frontal angle,	...	...	59°	...	...	75°	...	...	...	70°	...
Fronto-orbital angle,	135°	140°	121°	...	..	...	119°	126°	...	...	...
Occipito-basilar angle,	126°	131°	...	...	130°	...	...	...	135°	132°	...
Cephalic index,	81	79	86	91	96	80	87	94	86	79	90
Cephalo-spinal index,	20,80	22,40	15,70	...	...	16,90	...	...	18,20	12,30	...

Several notes are appended to these two Tables. Amongst other particulars, it is recorded to the first Table that Cases 2, 3, and 10 had goitre, and 1, 3, 8, and 13 had some deficiencies in the organs of generation. The notes to second Table refer for the most part to irregularities of the teeth, and minute peculiarities in the skulls.

Gazzaniga had the basilar apophysis completely horizontal, with traces of the spheno-basilar suture still remaining. The palate bones were very flat.

The female cretin of 12 years had the spheno-basilar cartilage still unossified. The basilar process was vertical, and the superior canines were still in the alveolus.

The libidinous cretin of 25 had a very prognathous face, of which the outline is given.

The cretin of 36 (Leva) had a goitre; generative organs deficient.

ARTICLE IV.—*On the Grouse Disease.* By ROBERT FARQUHARSON, M.D., Lecturer on Materia Medica at St Mary's Hospital Medical School, and Physician to the Belgrave Hospital for Children, London.

So many of the acute diseases affecting the human race still remain unexplained, that we can scarcely feel surprised at the mystery which envelops most of the pathological conditions met with in the lower animals. Year by year, however, it becomes more evident, that by a study of the second order of phenomena side by side, valuable light may be thrown upon many obscure points of morbid action among ourselves, and important indications for treatment will assuredly follow. Already the careful unravelling of the infective process in sheep and cattle has borne good fruit in this direction, and skilled investigation has a great field before it in overcoming the many difficulties which necessarily attend the practice of comparative medicine. One of the most perplexing features of the whole subject undoubtedly is the remarkable way in which new diseases seem to crop up from time to time in the animal kingdom. Some of these, as the rinderpest and the foot-and-mouth disease, are well known to be importations from abroad, and we can trace without difficulty the precise way in which their introduction into this country has been effected. Others, however, appear suddenly and apparently *de novo*, and so unexpected is their coming and so rapid the progress of destruction, that the epidemic may have almost completed its wholesale work before we have time to set ourselves fairly to inquire what the explanation may be.

Mysterious outbreaks of this sort are not very uncommon among birds, and one of these has excited much interest among sportsmen and naturalists during the last few years. I refer to the grouse disease, which, since its first appearance among us, little more than twenty years ago, has returned with such unvarying punctuality at regular intervals as to occasion serious inconvenience and alarm among those to whom a successful shooting season is of importance. We are now only too familiar with the general features of the epidemic. As nearly as possible every seven years, keepers begin to observe the shadows of coming events in an occasional dead or weakly bird about the higher grounds, and in a surprisingly short space of time it will become difficult to walk a few yards over the heather without meeting evidences of the severity of the disease. Not only may the dead be picked up everywhere, but many of the living are so weakened as to be almost incapable of flight, and are frequently met with in a dying state close to the smaller burns or wells.

Fortunately, however, this state of things stops short of absolute extinction; and just when such a calamity seems most threatening, the pestilence abates, and the few survivors are left in peace to repair as they best may the ravages made in their numbers. It is clearly evident, however, that some time must elapse before a moor recovers its stock in anything like full proportion, and 10 or 15 brace may usually have to be set against 80 or 100 shot on the 12th of August before the appearance of the disease. We shall not therefore be far wrong in calculating, that two or three out of the seven years intervening between each recurrence are practically spoilt for sporting purposes by the necessity of giving the birds that jubilee which their diminished numbers require. The interruption to shooting which thus takes place is something more than a temporary inconvenience, for it may fairly be looked upon as a serious commercial misfortune. A bad grouse year in the Highlands may imply a year of absence on the part of the proprietor, or at all events a much shorter period of residence than usual, and the consequent withdrawal from the district of the money as well as the personal influence of the laird; and, although the wealth of the country still makes competition run high for grouse land, the comparative uncertainty attending the prospects of sport in these days cannot fail sooner or later to react unfavourably on the rents obtained, and thus those proprietors who depend for much of their income on these sources will suffer considerable reduction of means, which will in its turn exercise a restraining influence on the material prosperity of the people. A cause, therefore, which can even remotely give rise to such effects, is well worthy of careful consideration and study, and we can scarcely be surprised that speculation has been very rife on the subject of grouse disease since its original mysterious appearance.

At first, however, scientific men rather stood aloof, and left the matter in the hands of keepers and practical sportsmen, whose explanations were not more numerous than vague and conflicting. Tapeworm, frosted heather, the consumption of corn, overcrowding, and consequent under-feeding, the destruction of vermin, and other causes were freely put forward, and supported with a confidence of assertion which frequently carried conviction to the minds of the unthinking. But to those who seriously set themselves to reflect on the difficult questions involved, and more especially to apply the light derived from the analogy of human diseases, it was very evident that nothing approaching a reasonable explanation had been advanced; and, consequently, within the last few years we have the satisfaction of seeing that the subject has engaged the attention of well-qualified observers, who have devoted time and care to its elucidation, and have formed theories which I am now about to discuss. Drs Cobbold and Crisp have more especially distinguished themselves in this inquiry, and recently another able worker has been added to the list, in the person of Mr Andrew Wilson, whose very practical and suggestive paper appeared in a recent number of the *Edinburgh Medical Journal.* He has put certain *meanings* of the subject so clearly before us, that further comment would seem almost superfluous; but I am so anxious to enlist wider sympathy among scientific workers, and if possible to inaugurate new lines of research, that I have risked the probability of becoming tedious, while I review what has already been done in the matter; and, after briefly glancing at the rival theories, which have been so well put before us by Mr Wilson, I will proceed to do what is far more important, and endeavour to indicate in which direction future investigation may be most usefully pushed.

Dr Cobbold's parasitic theory first comes under consideration, and has been received with the respect due to the great industry and high scientific character of its chief exponent.

It will be remembered that some years ago, when the British Association met at Dundee, Dr Cobbold submitted an elaborate report on the grouse disease, in which he decidedly negatived the notion of tapeworm being in any way responsible for its ravages. Much more recently, however, the discovery by the same indefatigable observer of a small, almost microscopic worm in the cæca, has led him to allege this as the true cause of the epidemic; but after due consideration of the facts and arguments adduced, I have been unable to see why such serious effects can be produced by so apparently trifling a cause.

The strongylus pergracilis of Cobbold is about an inch long, hardly equals the thickness of a delicate thread, and exists in considerable but not excessive numbers in those two elongated portions of intestine which form the cæca of the bird. This portion of the alimentary canal, however, is not of very essential importance for digestive purposes; it is never blocked or absolutely occluded by the parasites, nor is any inflammatory condition set up sufficient to account for the serious symptoms observed. Were parasitic influence so all-important, it would surely be more reasonable to believe that the tapeworm, which occupies the most essential part of intestine, and which sometimes so effectually fills up its tube as to interfere seriously with the absorption and passage of food, would be sufficient to bring about serious results. But experience quite negatives this, and observation shows that the presence of tapeworm, even in excessive quantities, does little more than cause loss of flesh, by no means in proportion to what we might expect. And during the last epidemic of grouse disease, the relative numbers of these parasites appeared to have no influence whatever on the symptoms, beyond being responsible for some additional degree of emaciation. Both the tapeworm and the strongylus are, to use a favourite expression of helminthologists, almost the invariable "guests" of grouse, even in a state of health, and it is only when they overpass certain limits that their presence is held to be dangerous. But the essential symptom of injurious parasitic disease in the lower animals is emaciation, and this, as we shall subsequently see, was frequently absent in very acute cases in the recent epidemics. Nothing was more common than to pick up and dissect a dead bird, in which little or no deviation from natural plumpness could be observed. We can also readily understand that, when any vital organ is invaded and destroyed by worms, a fatal event can hardly be averted; and in illustration of this, we may instance the hydatid in the brain of the sheep, constituting "sturdy," or staggers; the fluke in its liver, causing the rot; or the terrible trichinia spiralis, whose deposition among our muscular fibres has caused so many painful deaths. But in the case of grouse disease, the blood and the ultimate tissues of the body are quite free from all parasitic intrusion, and the worm occupies a part of the frame where its presence may, theoretically, be borne with comparative impunity. The presence of the strongylus in the intestine of the grouse bears much analogy to the familiar threadworm which infests the cæcum of children, and which never in my experience brings about more than discomfort and inconvenience. A numerous array of symptoms has been placed to the account of this troublesome creature, but a considerable opportunity of observation in this direction has failed to convince me that much beyond digestive derangement is actually often produced. In the same way, whilst believing that grouse may also suffer annoyance, I quite fail to see in what way the presence in abnormal quantities of a natural parasite can account for the curiously regular return of the pestilence at stated intervals, for the rapidly fatal nature of the attack, for the curiously capricious manner in which it spreads from place to place, and for other features in its natural history, which will be developed when we come to consider the question from another point of view. Careful observation and reflection on the whole question early led me to the belief that the theory of a contagious epidemic better explains the various phenomena, and I congratulate myself on the powerful support of Mr Wilson in propagating what seem to be views capable of some practical application. Of course, at the present stage of our inquiry, any views expressed must be merely tentative, and may receive much modification during the future progress of research. But I venture to think that the idea of an epidemic and infectious fever fits the facts already accumulated with some degree of accuracy, and has at least this advantage, that it seems to hold out the possibility of suggesting a remedy. Let us see, therefore, in how far I may be able to justify myself for coming to this conclusion.

In the first place, the mysterious nature of the grouse disease places it within the category of epidemics. We are forced to confess, that notwithstanding the laborious investigations of later years, we know little of the origin and natural history of cholera; and although we may all claim a certain superficial acquaintance with scarlet fever or measles, which of us will venture to assert that we have any knowledge of the way in which they spring up quite unexpectedly from time to time, or the laws which regulate their relative severity under apparently similar conditions? Whilst these phenomena remain unexplained, we need express no surprise that we can at present do no more in connexion with our present subject than use a phrase which does good service on many similar occasions, and say that some epidemic influence is at work in devastating our moors once in every seven years.

Again, the capricious nature of the attacks argues in our favour.

It is well known that even when the grouse disease is at its worst, the lower grounds of a shooting will often be entirely spared, and that even a very trifling cause will be sufficient to divert the epidemic wave. Thus, I have myself observed the worst effects of destruction to be progressing rapidly on the territory of one proprietor, whilst his neighbour, whose land is only separated by a small burn, is enjoying excellent sport, and has not picked up a diseased bird. What analogy can be more complete between this and cholera, which has been known to decimate one side of a street, whilst the inhabitants of the other have remained unaffected from first to last?

We will find also that the progress of the disease may be extremely capricious, skirting the very limits of a particular tract one year, and returning next autumn to devastate the moor which it had almost touched before; and after its work is done, it dies out on that spot entirely and completely, until again summoned into existence by some mysterious law which we are at present unable to explain.

What little we know also of the natural history or symptoms of the disease, argues in favour of its specific or constitutional nature. Great differences prevail in the degree of loss of flesh observed, and frequently we will find dead or dying birds to be as plump as in their healthy condition, whilst others are reduced to mere skeletons.

This depends, no doubt, on the dose of fever poison imbibed, so that whilst those dying from a very acute attack, or whose constitutions are unable to withstand its debilitating influence for more than a brief period, retain the outward appearance of health, the more lingering cases present all the indications of excessive debility. The analogy is again complete with some of the feverish complaints affecting the human subject, and is still further borne out by the great probability of the actual presence of fever itself, dead or dying birds being almost invariably found in the immediate neighbourhood of water, sometimes even lying with their beaks immersed in the spring or burn. Diarrhœa is also a constant symptom, and in this way, from widespread dissemination of the disease by the evacuations of the sick, we may trace a means of its very rapid extension to the healthy, and add another link to the chain of evidence binding together the theory which I am endeavouring to support. Lastly, I should consider it highly probable that actual infection or contagion from contact, plays a distinct rôle here, apart from what is vaguely styled epidemic influence; and having thus summed up what is known regarding the symptoms, I will now proceed to inquire into the results obtained by careful pathological research.

Towards the beginning of last shooting season, I had several birds sent to me by post from a moor in Aberdeenshire, where the disease was raging with great intensity. The details of their dissection I contributed in September to the *Lancet*, and shall therefore be very brief in my description of the appearances observed by myself and Dr Cheadle, Lecturer on Pathological Anatomy at St Mary's Hospital, who kindly gave me the benefit of his experience.

The birds, as already stated, were in very varying stages of condition, some being comparatively well fleshed, whilst others were reduced to mere bone and feathers. The most constant alteration in the internal organs was observed in the liver, which in every case was soft, almost diffluent, and of a peculiar greenish-black hue. No trace of purulent infiltration, abscess, or deposit of entozoa could be detected, but microscopic examination showed that the hepatic cells were undergoing fatty degeneration; and this again supports the analogy with the continued fevers affecting the human race, in some of which, Dr Murchison tells us that a sort of fatty degeneration, somewhat analogous to acute yellow atrophy of the liver, takes place.

The lungs were not found to be notably affected, and here my experience differs from that of Mr Wilson, who invariably observed inflammation of the respiratory surfaces; but this not only shows that birds from different parts of the country may be affected in different ways, but still further bears out my opinion, by furnishing another point of resemblance to typhus and typhoid fevers, in which it is well known that bronchitis and pneumonia are very common complications.

The gizzard presented no abnormal features; the cæca were found to be occupied, but never to a very excessive extent, by the minute worm (strongylus pergracilis) which Dr Cobbold has so well described, some amount of delicate punctured injection existing on the mucous membrane.

In the small intestines tapeworm invariably existed in greater or less degree, being sometimes so tightly packed as to give the portion of gut the appearance of the distended finger of a glove. The degree of emaciation present seemed to be sometimes, but not invariably, due to the quantity of these entozoa, and the consequent impairment of nutrition.

The lower half, or two thirds, of small intestine was usually congested, though not to any marked degree, and was filled with thin secretion, much resembling the well-known pea-soup evacuations of typhoid fever. The other organs, so far as I could judge, were perfectly normal, and careful microscopic examination of the blood and muscular tissues failed to furnish any evidence either of the intrusion of parasites, or of any specific structural alteration.

In giving this account of my anatomical studies, I am quite aware that it must only be looked upon as a very elementary contribution to the subject. Much more extended and elaborate inquiry by highly skilled investigators must be made, and I hope that we shall soon have the satisfaction of hearing that this has been undertaken on a large scale and comprehensive basis. Such, then, must be some of the work of the future; and although no theory of the disease can ever be complete which does not rely, at least partly, for support on a sound pathological foundation, still very much must be done in the way of inquiry in other directions. We must determine, for instance, how the disease spreads; what atmospheric conditions seem most favourable to its existence; what laws regulate the apparently capricious method of its progress—sparing the low grounds, whilst the high are decimated, deflected in its career by a little burn, or a mound, or the side of a hill. Let us track out the precise spot on which the seven years' epidemic begins, and find out whether it is really ever absolutely extinct, or whether it smoulders on, like cholera in the tropics, ever ready to light up into a flame on sufficient provocation. Let us obtain, so far as possible, the history of past epidemics, and see how they differed from one another, or whether any increase of intensity can be substantiated; and let us more especially note at what precise time of year the first cases arise—whether before, or during, or after the breeding season, and whether the young birds are born in a feeble and predisposed condition.

Some attempt must also be made to study the natural history of the disease; and this will doubtless be attended with great difficulty, in consequence of the almost impossibility of keeping even healthy grouse alive in a captive state. But, in any case, it will be practicable to ascertain the temperature of the diseased birds, and experiments might also be made to discover whether the affection is communicable from the sick to the sound by personal contact, or through the medium of the evacuations. A judicious series of feeding experiments might also tend to clear up the precise part which the strongylus pergracilis plays in the tragedy. Finally, if we are led to adopt the theory of parasitic causation, we are bound to discover the source from whence the minute worm is originally derived, and the way in which it intrudes itself upon the unwilling hospitality of its host. These, and other points, which will no doubt occur during the progress of investigation, seem to be all-important, as indicating the most hopeful lines of future inquiry. They will require for their due consideration the earnest co-operation of the practical sportsman with the man of science, and it will be necessary to sift carefully the ill-digested mass of crude fact and opinion which the observations of gamekeepers and others have gradually accumulated. In this way it seems possible that we may eventually arrive at sound conclusions, and, more especially, be enabled to formulate suggestions for the check of a pestilence which is doing so much to impair the prosperity of Scotland. At this stage of the proceedings, therefore, and with the evidence at present in hand, it may appear presumptuous on my part to attempt to draw up even a faintly suggestive plan; but, granting the plausibility of the premises from which I start, we must, I think, allow that my remedy has also a reasonable foundation.

Let us, then, for the sake of argument, look upon it as proved that the grouse disease is of an epidemic or infectious nature, spreading either by contact or by the evacuations of the sick. Its arrest may, therefore, be summed up in one word—*isolation.*

Now, of course, when scarlet fever or measles break out among ourselves, nothing is easier than to carry out this principle, and prevent all contact with others until the patient is thoroughly convalescent; but, unfortunately, we cannot seize our affected grouse, put it into a hospital, or confine it to one room until all danger to its fellows has subsided. We must act with much decision, and follow the example of those who freed us from the invasion of rinderpest by the vigorous use of the poleaxe. The plan which I propose I had the honour of communicating to the *Lancet* nearly two years ago, and I must therefore crave your indulgence for reproducing it briefly here.

Whenever the first appearance of disease breaks out, let us kill down, not only the individual diseased bird, but the entire covey of which it formed part, and let the carcasses be at once either burnt or buried along with some antiseptic material, cremation being decidedly preferable. We thus not only stamp out the early foci of disease, but remove what must be a very effective source of its spread, *i.e.*, the bodies of dead birds lying about, tainting the air, heather, and water with infective germs. Of course, we are not yet in a position absolutely to say, at a very early stage, whether a bird is diseased or not, but experience will soon enable us to detect the incipient symptoms in failing vigour and altered general appearance, and a slow, close-hunting dog will be of great service in enabling us to pick up the enfeebled victims of the pestilence. It will be necessary to obtain a sheriff's mandate to permit us to destroy birds out of the regular shooting season, and the proprietors of neighbouring districts must combine to carry out the plan simultaneously; and however utopian it may seem, I feel somewhat sanguine regarding its possible success. Different covies of grouse mix so little with one another in summer and early autumn, and keep so strictly to their own tract of heather, that the rapid destruction of even widely scattered centres of infection contains all the elements of a truly preventive measure. But we must go even further than this—we must endeavour to do something in the way of disinfection. Wells and sources of water-supply must be cleared from time to time, and purified by Condy's fluid, charcoal, or other effective means; the droppings of the sick must be, so far as possible, removed, or neutralized by carbolic acid, and small patches of heather which seem especially impregnated may be burnt; and although difficult to carry out, these sanitary precautions will be found equally to fit any hypothetical notions which we may form concerning the origin of the disease.

Our imaginations might carry us much further, both in suggestive causes and remedies, but I feel that I have already exhausted far more than the space which I might reasonably expect to claim. The theory which I have brought forward, and which Mr Wilson has so ably supported, has this in its favour, that it gives hopeful indications for the future. It hardly requires a moment's reflection to see how fallacious must be the hope of any successful treatment in so rapid, widespread, and fatal a pestilence as this, and all we can expect to do is to stamp it out in the rudest and most effective way.

I trust that the increasing importance of the subject may shortly indicate the necessity for taking it up on a truly comprehensive scale, and I shall be only too glad if these remarks serve in any degree as the foundation on which a more substantial edifice will gradually arise.

ARTICLE V.—*On the Uterine Souffle and the Fœtal Heart.* By JAMES CUMMING, M.D., F.R.C.P. Ed., Physician to the New Town Dispensary, Extra Physician to the Royal Hospital for Sick Children, Edinburgh.

PART I.—THE UTERINE SOUFFLE.

Its Discovery.—M. Lejumeau de Kergaradec, when auscultating a patient for the fœtal heart, heard a sound *synchronous* with the mother's pulse, which seemed as if it were produced in a number of canals, characterized by a bruit resembling that heard in certain diseases of the heart or of the great vessels. He then came to the conclusion that it had some connexion with the site of the insertion of the placenta in the uterus. It must have been prior to 1821 when he made this discovery, as he records the case of a patient advanced in pregnancy, whom he had examined along with Dr Bréheret, when the uterine souffle, but not the fœtal heart, was heard. She was delivered two days later of a putrid child.

Many of his researches on this bruit were made along with his friend Laennec in the Necker Hospital.

The souffle has been likened to whistling, the vibrations of a base cord, the cooing of a turtle-dove (Cazeau), aneurismal or cardiac murmurs (Leishman), a thick metallic cord in vibration, a sibilant murmur, a sonorous râle in the chest, the murmur of an erectile tumour (Velpeau), the bruit in the carotid and brachial arteries (Laennec), the blowing of bellows (Von Siebold), the rushing of air through the branches of a leafless tree (Matthews Duncan),[1] a blowing whizzing murmur of varying intensity (Schroeder).[2] It is termed by some the bruit de diable, etc. It increases during a pain, becoming more sibilant, disappearing at the acme of a uterine contraction (as no blood is passing through the uterus).

There are three great theories as to the cause of the souffle:—

I. That it is produced in the utero-placental circulation, hence called the *utero-placental* souffle, supported by Kergaradec,[3] Evory Kennedy,[4] Ulsamer, Laennec, M. de Lens, Ollivry, Cazenave, and Hohl.[5]

Evory Kennedy, who next after Kergaradec paid most attention to this sound, states "that the souffle is present only when the uterine circulation of the placenta exists, and ceases when the vessels which serve to sustain this connexion are no longer pervious." He further adds, that when the uterus is empty and contracted after delivery, or when the fœtus has died *in utero*, the souffle is no longer heard. I have been unable to ascertain whether he still adheres to these statements, made nearly half a century ago. Most modern authors believe this theory as to the cause of the souffle to be quite erroneous.

Let me adduce the following arguments:—Depaul[6] heard it in three distinct places at once; Beau, in a patient suffering from an ovarian cyst. It has been heard in cases of vascular sarcoma, large abdominal tumours, etc. (Montgomery).[7]

Nagle[8] cites a case of a patient who at the seventh month received an injury, and then the fœtal heart ceased to be audible, but the souffle remained distinct to the end. She was delivered shortly after of a still-born child much decomposed, and which had probably been dead three weeks. Again, if it is dependent on the placenta, it ought to be in proportion to the size of the latter, but in a small impoverished placenta, a loud blowing souffle may be heard. Out of 295 cases, Depaul heard it distinctly on each side in 185. He further states that the death of the fœtus does not cause any appreciable difference in its intensity. It has been heard in cases of prolapsus of the cord when the heart has ceased to beat.

---

[1] Notes of Lectures on Midwifery and Diseases of Women. 1867.

[2] Lehrbuch der Geburtshülfe. 1872.

[3] Mémoire sur l'Auscultation appliquée a l'Etude de la Grossesse, etc., par M. J. A. L. de Kergaradec. 1822.

[4] Observations on Obstetric Auscultation.

[5] Die Geburtshülfliche Exploration.

[6] Traité Theorique et Pratique d'Auscultation Obstétricale.

[7] Signs and Symptoms of Pregnancy.

[8] Lancet, 1830-31.

Velpeau[1] mentions a case in which the head of a hydrocephalic fœtus had been punctured, and some time after the souffle was heard loud and distinct; also that of a patient admitted into the Hospital St Antoine in 1829, when a souffle was audible, and to all external appearance she seemed to be between the fourth and fifth month of pregnancy. On examination, it proved to be two large fibrous tumours.

It has been observed in cases of putrid fœtuses, and where the placenta with its vessels have been found full of thickened and coagulated blood.

Laennec, who advocated the utero-placental theory, received from Ollivry of Quimper the following letter:—"J'ai reconnu bien positivement sur quatre femmes la vérité des observations que vous m'avez communiquées. Je me suis assuré, en introduisant la main dans la matrice immediatement après la sortie de l'enfant, que le point où j'avais entendu les pulsations avec souffle avant l'accouchement correspondait exactement à celui où la placenta était implanté. Je suis tellement convaincu de cette vérité que je ne répéterai plus cette recherche, qui est assez pénible pour la nouvelle accouchée. S'il vous fallait une nouvelle preuve à l'appui de l'opinion que vous m'avez manifestée relativement à la cause qui produit ce bruit de souffle, vous la trouveriez comme moi, dans sa cessation à *l'instant même où l'on coupe le cordon ombilical.*" Cazenave and Monod also concurred in this. In confutation of the above, I may briefly state that Carrière heard the souffle twenty-four, and Collins[2] forty-four, hours *after the expulsion of the placenta.* The results of the above cases and observations show that the souffle is not dependent on the utero-placental circulation.

II. That it is due to pressure on the large arterial trunks situated posteriorly (aorta and iliac arteries), hence called the abdominal souffle, supported by Bouillard, Haus, Kiwish, and Nagle. Bouillard founded his opinion from hearing it in the case of a large tumour, where the abdominal vessels were compressed, and which was mistaken for pregnancy; Cusack of Dublin, again, from having heard a sound resembling it in a case of enlargement of the thyroid gland.

If this theory be correct, we ought to hear it simultaneously on both sides and in fixed parts of the abdomen. Then, again, according to the above, it ought to be removed by assumption to the prone position, but this has not the slightest effect in arresting the sound.

---

[1] Traité Complet de l'Art des Accouchements.

[2] Dublin Medical Journal. 1838.

III. That it is produced by the vessels which ramify in the uterine walls, hence called the uterine souffle, supported by Dubois, Depaul, Cazeau,[1] Kilian, Matthews Duncan, Tanner, Tyler Smith,[2] Leishman,[3] and Shroeder.[4]

A few words on the vascular supply of the uterus. The arterial supply is from two sources, viz., 1. The uterine arteries, which arise from the anterior divisions of the internal iliacs, pass between the layer of the broad ligament, sending off branches which ramify in the substance of the uterus. 2. The ovarian arteries arise from the anterior part of the aorta, a little below the origin of the renal arteries, and pass between the layers of the broad ligament to the margin of the ovaries, which they supply, also sending off branches to the uterus. The uterine artery frequently sends a branch to the vagina, which might communicate with a branch from the internal iliac. The veins are distributed in the same manner, and terminate in the uterine plexuses. They are of large size, and when outside are termed true veins, but inside lose their true coats, merely consisting of the lining membrane adhering to canals channelled through the substance of the uterus. These vessels (arteries and veins) are remarkable for their tortuous course and frequent anastomoses.

Maternal Course.—The blood is conveyed into the cavities of the placenta by the helicine arteries (which proceed from the arteries of the uterus) and is returned by large short straight trunks, which pass obliquely through the decidua serotina and discharge their contents into the great uterine sinuses.

Fœtal Course.—Through the umbilical arteries (two) into the tufts and back by the vein.

The formation of the placenta commences in the latter part of the second month of utero-gestation, and acquires its proper character during the third month. Albinos, Hunter, Dubois, and Mareschi, made researches in connexion with the anatomy of the uterus and placenta.

It seems evident that the theory, that the souffle is produced by the vessels which ramify in the uterine walls, as supported by most of those competent to write on the subject, is the correct one. Matthews Duncan concisely ascribes it to "blood rushing through the maternal sinuses." Schroeder says it is doubtless produced "in the large vessels of the uterus, and that no safe conclusion as to the seat of the placenta can be drawn from it." That the souffle is heard in many cases most distinctly on that part of the uterus corresponding to the insertion of the placenta, is probably from the fact of the vessels being even still more enlarged there, and perhaps this may explain why so many eminent men ascribed it to the utero-placental circulation alone.

---

[1] Traité Théorique et Pratique de l'Art des Accouchements.

[2] Manual of Obstetrics.

[3] A System of Midwifery.

[4] Lehrbuch der Geburtshülfe.

IV. Andral and Scanzoni believed the souffle was due to "alteration in the blood of pregnancy," as in chlorosis (a diminution of the red corpuscles).

V. Lastly, "That it is due to multiplicity of the currents of blood within the uterine walls," supported by De la Harpe.

At what period of utero-gestation is the uterine souffle first audible?

It is usually heard at an earlier period than the fœtal heart.

The following are a few data from some eminent authors:—

1. At the end of the tenth week.—Evory Kennedy.[1]
2. From the middle of the eleventh to the end of the twelfth week.—Depaul.[2]
3. At the end of the twelfth week.—Tanner.[3]
4. Between the third and fourth months.—Carrière.
5. During the fourth month.—Laennec;[4] Tyler Smith.[5]
6. At the end of the fourth month.—Dubois; Monod.

Kennedy, Meissner, and Nagle believed it to be an almost certain sign of pregnancy.

Elliotson, Ferguson, Forrestier, Dugès, Ryan,[6] and Lenormand, on the other hand, had little confidence in it as a sign.

To sum up, the uterine souffle is a *symptom*, but not a sign of pregnancy.

(To be continued.)

ARTICLE VI.—*The Toxical Properties of Lolium Temulentum and Lolium Linicola.* By GEORGE FLEMING, M.R.C.V.S., F.R.G.S., Royal Engineers.

(Continued from page 146.)

THE extractive matter obtained from lolium is a more active poison for the carnivora than the green oil not deprived of the yellow substance already spoken of. It is procured by the following procedure:—The flour of lolium, already treated with ether, yields to cold water a notable amount of soluble principles; the liquid obtained by treating this flour by the "displacement" method is of a somewhat deep reddish-brown colour. When boiled, it furnished an abundant scum, which gradually thickens, and finally forms coagulated albuminous flakes of a grayish hue. The colour becomes deeper as the solution is concentrated, and it acquires marked viscidity. If mixed with four to five times its volume of alcohol, very abundant clots of impure dextrin are immediately precipitated; these may be purified by several successive solutions and precipitations. When the liquid is deprived of its dextrin and albuminoid matters, it is dark brown, and, if evaporated, yields an abundant extract, the odour of which is analogous to that of extracts from poisonous plants belonging to the *Solanaceæ.* No alkaloid could be obtained from this extract, though the procedures recommended as the best, and particularly that of Stass, had been employed. It appears, however, that the active principle in the extract is not precipitated by acetate of lead or lime, and that these reagents do not alter its toxical properties.

---

[1] Observations on Obstetric Auscultation.

[2] Traité d'Auscultation Obstétricale.

[3] The Signs and Diseases of Pregnancy.

[4] De l'Auscultation Médiate.

[5] Manual of Obstetrics.

[6] Manual of Midwifery.

It would, therefore, seem to be positively ascertained, that the seeds of *Lolium temulentum* contain two active but perfectly distinct substances, one of which is soluble in ether, and the other remains in the flour treated by that menstruum, and may be readily obtained from it by means of water. Neither of these principles is volatile; for, according to these authorities, the water distilled from the darnel, which several authorities have reported as possessing a remarkable activity, never produced any appreciable effect on the health of animals to which it was administered. Both of the active principles become altered, like other organic substances, when exposed to a high temperature; though they do not lose their activity when the degree of heat does not exceed 100° Centigrade. Lastly, both are soluble in alcohol; so that when an alcoholic or hydro-alcoholic extract is administered to carnivores, the same effects are produced as if the grain itself had been given. It is not so, however, when one or other of these two principles is given separately to these animals, and the results produced by each in experiments continued from 1860 to 1865, are enumerated by Baillet and Filhol in the *Journal des Vétérinaires du Midi.* These results may be thus summarized:—

When the fatty extract obtained from the flour of *Lolium temulentum* by ether—and which is nothing else, as has been stated above, than the green oil combined with the yellow matter—is administered to dogs and cats, and the dose of this oil is increased to an amount representing 100 grammes to 2 kilogrammes of grain, peculiar symptoms soon begin to manifest themselves. Most commonly, an abundant and viscid saliva escapes by the commissures of the lips almost immediately after it has been swallowed. The animal appears to be stupid and amazed, and, if at large, retires to a corner. In seldom more than half an hour, partial and temporary tremblings are observed in different parts of the body; these tremblings, which are one of the essential characteristic effects of the yellow matter on the economy, soon become general, continuous, and with rapidly-increasing intensity. They are frequently so violent that the animal cannot stand, but is obliged to lie; on several occasions they were very severe, and the head of the poor creature struck the ground so forcibly that a man was compelled to hold the dog on the litter to prevent it being injured by these repeated percussions. These tremblings occur everywhere with the same violence—in the limbs, the various regions of the body, the jaws, and even the eyelids, which move with extraordinary rapidity.

To these tremblings is added very marked rigidity of the limbs. While the animal is standing, the toes of the paws are widely separated, as if to increase the bases of support, and it remains fixed, with the tail drawn between the legs; or, if forced to move, its movements are made with difficulty, and the feet are raised and placed again on the ground with great hesitation.

When the tremblings become general, they are accompanied by convulsive contractions of the muscles of the limbs and neck. In the majority of cases the animal is then lying, and the limbs are observed to be suddenly flexed and rigidly extended again from time to time. These convulsive movements are nearly always greatly exaggerated at intervals, and the creature experiences veritable crises, during which it appears to suffer terrible pain. Some animals then emit the most pitiable cries, and roll on the straw, upon which they cannot stand. In the intervals between these crises, the respiration is puffing and hurried, and the heart beats violently and rapidly. The mucous membrane of the mouth, the conjunctivæ, and the skin lining the ears, are of a reddish-violet hue, and the pupils are widely dilated. In all cases, in the midst of its sufferings the animal still responds to the voice, wags its tail, attempts to rise, and appears to seek to be caressed.

All the dogs experimented upon, vomited immediately after receiving the fatty matter extracted from the lolium by ether; though this act did not preserve them from the injurious influence of the substance, which was already, no doubt, either partially or wholly absorbed.

The period during which the poison continues to manifest its effects is necessarily variable. If the dose has not been very large, the salivation and tremblings continue for more than half an hour, an hour, or two hours at the most. If it has been larger, the symptoms may last for six or eight hours, and dogs have been seen to tremble and exhibit convulsive movements for one, and even two, days after the ingestion of the poison; one animal in particular had not completely recovered until seven or eight days had elapsed.

The animals do not care for food until the symptoms induced by the poison have much diminished in intensity; and even then it has been remarked that they experience much difficulty in separating the lips and jaws in order to seize their food or to lap, frequently having to make two snatches at small morsels of chopped flesh.

Only one of the animals experimented upon by Baillet and Filhol succumbed to the action of the yellow colouring matter.

Death took place in a crisis of the most horrible suffering, within four hours after the ingestion of the toxical substance. An autopsy was made almost immediately after the creature expired, and it was noted that the carcase was extraordinarily rigid; the lungs were of a beautiful rose-tint, and not gorged with blood, and they seemed to have partially lost the property of contracting under the influence of the external atmosphere. The other lesions were similar to those produced by narcotico-acrid substances: very marked irritation of the mucous membrane of the stomach and intestines, and particularly that of the duodenum; the liver and kidneys gorged with dark-coloured blood, which escaped on incision; bladder filled with dark-yellow-coloured urine; the heart and large vessels distended with black fluid blood, which coagulated on exposure to the air; and congestion of the nerve-centres.

Such have been the symptoms and lesions observed in the carnivorous animals which received the green oil of *Lolium temulentum*, not deprived of the yellow matter with which it is associated when it is obtained from the grain, bran, or flour by ether. But when this oil is separated from the yellow substance by the procedure referred to, it is absolutely inert, thus proving that it is not the toxical principle. The yellow matter so isolated acts, on the contrary, in the same manner and with the same activity as the fatty matter extracted by the ether; and this is sufficient to demonstrate that in it alone is to be found the active principle which the ether removes from lolium. All the experiments hitherto made have confirmed this conclusion; at the same time that they have demonstrated that the active principle, which is not volatile, is altered by a slightly elevated temperature; that it is but very little soluble in boiling water, but is, on the contrary, so readily soluble in alcohol that it may be partly removed by it from the oil with which it is associated, and, when thus separated, will determine the same effects that it produces when isolated, according to the method already alluded to.

If the green oil still containing the yellow matter induces violent suffering in the carnivora, it would appear that the product obtained from the grain of lolium, by treating it with water after having submitted it to the ether, acts upon them with even more energy. Baillet and Filhol have administered it to dogs and cats —sometimes in the liquid form, at other times as an extract—and it has frequently caused death. Among the symptoms it induces, there are some which resemble those appearing after the ingestion of the yellow matter, and others of a special kind.

The carnivora to which this extract or watery solution of lolium was administered (in doses representing from 125 grammes to 2 kilogrammes of the grain for the dog, and for the cat from 125 to 250 grammes) were affected during or soon after its ingestion by profuse salivation, in the same way as those creatures which had been made to swallow the other product. Like them, also, they were restless and agitated—they were seized with partial but intermittent tremblings, and more or less abundant vomiting, which enabled them sooner or later to get rid of a portion of the poison, though it did not entirely preserve from the action of the active principle, which appeared to have been already entirely or almost entirely absorbed when the animals commenced to vomit. Their intellectual faculties were not affected. In a short time after the administration of the toxical agent, in all the carnivora the membrana nictitans advanced slowly in front of the eye, covering it more or less completely, and this remarkable symptom gave the animal an altogether peculiar aspect. The creature's vision seemed to be impaired or confused; it hesitated to move, the eyes were sunk in their orbits, and, when not covered by the membrana nictitans, the pupils were observed to be enormously dilated. At times, also, the free borders of the eyelids appeared to be inverted. The animal retired into a corner as soon as the first symptoms manifested themselves, and the temporary but abrupt tremblings were witnessed in various regions, though they were neither so general, continuous, nor intense, as those induced by the active principle of the yellow substance. In a short time, the creature could no longer stand, but leaned against the wall, or persistently lay. When compelled to move it went with the head pendent, and staggered and fell like a drunken man. The fore extremities appeared to be the most feeble, and the efforts to get up were marked by abrupt movements and repeated falls; and when a large dose of the aqueous solution had been given, these falls were succeeded by more or less violent convulsions and tremblings, so severe that the whole body was involved; it was often in the midst of these convulsions that the animal perished.

In other cases the convulsive movements were less violent, and were sometimes replaced by the tremblings. If the animal was not disturbed, it was so conscious of its helplessness as to be quiet. Its mental and generative powers were not affected, but the circulation and respiration were accelerated, the heart's beats were strong, and the visible mucous membranes were more or less dark-coloured. When recovering, all these symptoms gradually disappeared, though it was some time before the animal could get up readily, or walk about steadily. In the majority of cases, it lay on the litter, plunged in a somnolescent state, from which it wakened up several times, and made repeated attempts to walk.

The duration of these phenomena was not so protracted as that of those developed by the action of the yellow matter, recovery occurring on the same day or night, after two, four, six, or eight hours' suffering. Those which died succumbed on the same day, and often within twenty minutes to two and a half or three hours after swallowing this aqueous solution. At the autopsy, exactly the same lesions were found as have been already described, though the body never exhibited the remarkable rigidity observed in poisoning with the yellow substance.

Though it would appear that the active principle contained in the watery solution of lolium flour, previously treated by ether, cannot be isolated, yet some of its properties, independent of its toxical action, have been established. Thus, it is soluble in alcohol as well as water; it is not volatile, it is not developed in larger quantity, nor is its activity increased under the influence of fermentation. It is sometimes contained in the masses of dextrin, which are separated by alcohol from the watery solution; and it is not precipitated by acetate of lead or lime. It would also appear capable of retaining its potency unimpaired for several months, when in the form of extract—a fact which may be hereafter of some importance, should it ever enter into the list of therapeutic agents.

From these observations, it might therefore be permissible to conclude, that the grain of *Lolium temulentum*, given in sufficient quantity, acts with much energy on the carnivora, and that it owes its activity to two different principles, which, when isolated, give rise to essentially different functional disturbances in these animals. One, the yellow matter soluble in ether, exercises a kind of special stimulant action on the nervous system, often followed by somnolescence, and which bears some analogy to the action of strychnine; the other, soluble in water, has a stupefying action upon the nervous system, evidenced by very remarkable muscular prostration, not unlike the condition induced in man by the abuse of alcohol, though differing from it in the intellectual faculties remaining unimpaired.

These active principles of the *Lolium temulentum* bear the greatest analogy in their action to that of the poisonous members of the *Solanaceæ*. They give rise most frequently, in the dog, to gastro-intestinal irritation and vomiting, dilatation of the pupil, relaxation of the sphincters, convulsions, disordered movements, and, finally, somnolescence or even coma. It may be added, that belladonna, henbane, and stramonium often induce paralysis, particularly of the posterior extremities, which resembles what occurs after the administration of the aqueous extract of lolium; and also that the ingestion of tobacco in a large dose is sometimes followed by muscular tremblings, not unlike those ensuing after a dog has received the oil extracted from lolium by ether. It would therefore appear to be established, that by its action on the animal economy, *Lolium temulentum* may be classed with narcotico-acrid agents.

It has been already stated, that there are several varieties of the *Lolium temulentum*, but it would not seem that there is any difference in the activity of these, so long as they have reached perfect maturity. Preparations obtained from grains yet green, and incompletely developed, are almost inactive.

Lolium temulentum submitted to cultivation loses nothing of its toxical properties. Of this, Baillet and Filhol assured themselves by making several experiments with grain collected from plants grown in a garden. And there should be nothing surprising in this fact, for in the conditions in which it usually grows in the midst of cereals, we cannot look upon it otherwise than as a cultivated plant. The soil in which it annually passes through its different phases is tilled, manured, and subjected to special care, and sometimes the seeds of lolium are sown with those of the cereals, so that it comports itself as a cultivated plant. Dwarfish, and but little productive in poor and badly-tilled soil, it, on the contrary, acquires large dimensions and fructifies abundantly in land on which wheat and corn flourish. It is therefore, in reality, a plant which grows like the cultivated cereals; and it should not be a matter for surprise that a special culture does not diminish in any way its properties. Of course, this is not always the case with the majority of medicinal plants, the activity of which is frequently considerably modified when cultivated.

With regard to the toxical action of the principles obtained from the *Lolium temulentum* on other than carnivorous animals, the researches of Baillet and Filhol are not without interest, inasmuch as they once more demonstrate that substances which appear to exercise their influence on the nervous system, often produce very different effects when administered to creatures of widely diverse species.

From these researches, it might be concluded that solipeds are very susceptible to the influence of the yellow substance obtained from lolium, and that this acts upon them with more energy than it does upon the dog; while they are completely insensible to the action of the principle which is soluble in water when administered by the stomach, marked effects only being produced when it was injected in large doses into the veins.

Baillet and Filhol were able to study the effects of *Lolium temulentum*, which was administered to a mare, in the form of the green oil, extracted by ether, from three kilogrammes of seed, and not deprived of its yellow matter. The symptoms commenced to manifest themselves in about three-quarters of an hour after it had been given. After a copious emission of urine and softened fæces, the animal was suddenly seized with general tremors, which soon became very violent. It stood with the limbs widely separated, pawed at times, or oscillated backwards and forwards at the extremity of its tense head-collar rope. Its physiognomy expressed anxiety, and it seemed to be strangely terrified if any one went near it; the eye was fixed, and the pupil dilated; the respiration was of a blowing character, the nostrils were widely dilated, and the beatings of the heart violent, tumultuous, and hurried.

It soon fell, but jumped up again quickly, when it immediately came down on the left side, and was unable to raise itself. From this moment there was incessant convulsive movements of the muscles of the neck, limbs, face, eyelids, and lips, with general tremblings, grinding of the teeth, sighs and groans, and the creature made impotent attempts to rise on its feet. The respiration was deep and hurried, the pulse small and quick, and the visible mucous membranes of a deep-red tint. From time to time the symptoms became exaggerated, and then there were real crises which lasted for two or three minutes, when the limbs were rigid, the neck curved until the chin touched the chest, the eyes pirouetted in their orbits, the teeth were champed and ground, viscid saliva flowed from the mouth, the respiration was difficult and whistling, the heart's pulsations so strong that they could be heard at some distance from the animal, and so hurried that they numbered 141 in the minute. After these crises, the mare lay exhausted, but its body was still agitated by the convulsive movements and general tremblings. In four hours the crisis ceased, the extremities became cold, and the animal's sufferings were terminated by death.

An examination of the body was made next day, when the following lesions were noted:—Violet patches on the mucous membrane of the left sac of the stomach, with bright injection of that of the right sac; manifest traces of irritation in the first portion and towards the middle of the small intestine, at the base and point of the cæcum, and at the gastric curvature of the colon; the liver gorged with dark blood; vessels of the mesentery distended with blood; black diffluent blood in the right cavities of the heart and the large veins; a voluminous whitish-yellow clot in the left ventricle; serous effusion beneath the visceral layer of the pericardium at the base, and external to the left ventricle; distention of the cranial and spinal vessels; an abundance of red spots in the nerve substance, and the gray substance of the spinal cord evidently softened.

With two other horses which received the same substance, but in a smaller dose, representing only one and two kilogrammes of grain, symptoms analogous to those affecting the animal above described, until it fell on the ground, were observed. Then a calm gradually ensued; they were somnolescent for a brief space, and soon after regained their normal condition.

Another horse remained proof against the action of the oily matter extracted by ether from a kilogramme of bran of *Lolium temulentum.*

As has been said, the watery extract has but little effect on solipeds, when administered by the mouth or rectum. Slight somnolescence, salivation, and faint tremblings of the olecranian muscles, were the only symptoms perceptible in three horses which had received this preparation in doses representing two, three, and five kilogrammes of grain. The same was observed with another horse, into the veins of which the carefully-filtered watery extract, from two kilogrammes of grain, was injected.

It was only when the dose was raised to a quantity representing four kilogrammes of grain, and was injected into the jugular vein, that poisoning terminating in death occurred. This was an old blind horse, and the injection was made on 11th January 1861, at ten o'clock in the morning. It was immediately followed by slight agitation and symptoms of colic; at the same time there appeared rapid quiverings in the muscles of different regions of the body, as well as in those of the limbs and face, while the heart's pulsations, which were strong, numbered 97 to 107 beats per minute. A little before eleven o'clock, there was somnolescence, abundant salivation—the limpid saliva falling drop by drop from the commissures of the mouth; agitation of the jaws; tremblings, at first limited and ephemeral, but soon becoming general, continuous, and very intense; back arched; limbs gathered under the body; and progression uncertain and staggering, the hind quarters being dragged as if the animal was beginning to be paralyzed.

At midday the tremblings were not so severe, but there was profuse lachrymation, the tears flowing like the saliva, and the membrana nictitans was slightly protruded; pulse 78. At two o'clock there was a diminution, then cessation of the trembling; somnolescence, salivation; respiration slow and deep; pulse 74 and 54. In the evening the animal was in the same state. The next day, at half-past seven o'clock, there was dulness; an œdematous swelling beneath the chest, and reaching to the inner aspect of the fore-limbs; refusal of food; mouth hot; mucous membrane of a violet hue; heart's beats strong; pulse 90, and the artery tense; respiration deep, and accompanied at each inspiration by an exaggerated dilatation of the nostrils, and strong twisting of the ribs; slight tremblings. At midday there was trifling epistaxis, and at three o'clock a considerable emission of strong-smelling, thick urine. On the 13th, at seven in the morning, all these symptoms were aggravated. At nine o'clock the horse fell on the litter, groaned, and had convulsions during the whole of the day, and it succumbed in the night.

On examining the body, an abundant citron-coloured fluid was found beneath the skin in all those places where swellings had been observed during life. The mucous membrane of the right sac of the stomach was reddish-violet in colour, and there was submucous extravasation of blood. The membrane lining the small intestine was of a pale slate-colour in some parts; in others it was thickened and stained with effused blood. There were some deep red spots at the point of the cæcum and the commencement of the floating colon. The peritoneum of the abdominal parietes was similarly diversified in colour, as was that of the omentum, mesentery, and intestines, and its vessels were everywhere distended with blood, which was likewise extravasated beneath it. The blood in the large veins was black, and did not coagulate on exposure to the air, and its globules were agglutinated in masses, though they were not altered in form. The bloodvessels of the brain and spinal cord were distended with the same kind of blood. Numerous apoplectic spots were noticed in the nerve-tissue, the gray matter of which was softened, and had a tint like wine-lees. In fine, the symptoms and the lesions noted in this case, as well as in that of the mare, which received the oil not freed from its yellow matter, were not unlike those witnessed in certain maladies due to blood alterations.

Only a small number of experiments were made upon pigs, but these demonstrated that the active principles of *Lolium temulentum* had but little, if any, effect when introduced into the stomach; and at most only slight tremblings, unsteady gait, and, at a later period, somnolescence, were observed in a pig five months old, into the jugular vein of which the filtered aqueous infusion obtained from 400 grammes of seed was injected.

(*To be continued.*)

CREMATION AND WICKER COFFINS.

We are strongly inclined to call this whole affair a good joke, and we abstain, because, having seen and read the "Unseen Universe," we are not sure that even perfect cremation, without offensive smell, has at Dresden disposed of a certain lady's ghost. The temporariness of what was seen of her is proved beyond doubt, and in a way that might answer for a class experiment in a theological academy: and the book referred to makes the eternity of the unseen ghost quite intelligible, physically speaking, and nearer to any one of us perhaps than we desire. Besides, who could talk of anything as a joke, upon which Henry Thompson and Seymour Haden write books or tracts, and for whose exhibitionary purposes the Duke of Sutherland is engaged, though for a short time only?

We have often heard of doctors making gain as undertakers and proprietors of graveyards; but, when we have inquired into the matter, it has generally turned out difficult to get at the facts, and also evident that there was modesty, if not shame, regarding their being divulged. But here are eminent and worthy surgeons stepping boldly out of their proper sphere, and publishing even in the *Times* their great thoughts as to the disposal of patients after death. One recommends a savage custom of cremation: the other offers to the public something "new and very nice" in the way of wicker coffins. Of these last there are many patterns, some decidedly ritualistic, some decidedly profane. Patients can get the pattern book, and decide for themselves which they will have, and this should be done early to secure exactly what is wanted.

The would-be splendid innovators have shown no fault in the present old-fashioned and hallowed mode of burial, which is not familiar to those interested in the subject of burying-grounds, and we may add which is not also in the way of being rectified by surer methods than cremation and wicker coffins. Among the chief faults of old burying-grounds, are bad situation, and retentive character of soil.

One great supposed advantage of cremation is the restoration to the air of the constituents of the body in a form suited for the support of vegetable life. Did ever any one hear such nonsense in the garb of sanitary science? To look after the dear poor vegetables of the world! A new society should be instituted for the protection of the interests of the plants of the whole world. To favour the discouraged total vegetable life of the globe by hurrying up supplies from a few decomposed corpses! What provident kindness! But then, as the cremation is to be perfect, and even ammonia reduced, the suffering vegetable world is to get no suitable support after all. For bread it is to have only a stone—a puff of elementary gas in homœopathic dose.

One great advantage of wicker coffins is the securing of a beneficial result like that described as to be got by cremation. Through the wicker the fine, useful, fetid gases of decomposition can escape, while they cannot get through the zinc and lead coffins of our day. But where are the fine zinc, lead, and oaken coffins to be found? What more like wicker-work than the fragile structure of 999 out of 1000 actual coffins? The present coffins are in this respect cheaper and equally efficacious. The fine tight coffins are too few to be of the least account.

In short, the whole affair is truly ridiculous; and interest lies chiefly in the study of it as a remarkable example of a foolish temporary enthusiasm, growing up in a time of unprecedented earnestness, of abundant activity, and of no lack of other sensational excitement.

Let us be laid in the grave as our forefathers have been—decently, reverentially, in a quiet secluded spot, beside our relatives, friends, and fellow-citizens.

THE BRITISH MEDICAL ASSOCIATION.

The Edinburgh meeting of the British Medical Association in 1875 has come and gone; and in looking back upon it, we believe it must be considered a most successful one. It was very largely attended; the weather was most favourable; there was a plethora of excellent papers in all the sections; the arrangements for entertaining as well as instructing the visitors were most complete. Everybody seemed anxious to please and be pleased; in short, it was not only a most agreeable holiday, but also an excellent opportunity for comparing notes as to medical and surgical progress.

However much Edinburgh men may regret that our visitors came at a time when the New Infirmary is only half finished, and the New University Buildings not begun, we would fain hope that they still saw enough to teach them that Edinburgh, as a Medical School, is second to none. In the addresses, at least, no falling short of its ancient power could be noticed. Sir Robert, bearing his weight of years and honours lightly, poured forth his stores of experience on the subject of Medical Education. Dr Begbie, in his thoughtful, scholarly, and polished oration, showed that the school of educated physicians, of which Britain has always been proud—from Sydenham and Graves, Latham, Alison, Watson, and Stokes—has young men to trust to in the future. Mr Spence gave us the outcome of his great experience and thoughtful conservatism in his review of the Progress of Surgery. Dr Matthews Duncan was as plain-spoken, clear, and incisive as ever; while Rutherford and Lister, M'Kendrick and Dewar, in their lectures and demonstrations, showed that the spirit of true scientific work, which seeks for truth for its own sake, is still active and fruitful.

We may seem to speak chiefly of our own men—for on them of course lay the burden and heat of the day—but the excellence of the papers, and spirit of the discussions, showed that our visitors were in no way behind their hosts.

There were almost too many claims on the time. Each evening had its entertainment: and with the President's reception on Tuesday, the conversazione of the Royal College of Physicians on Wednesday, the dinner on Thursday, and the garden party on Friday, it was high time that the Saturday should be devoted to sea-breezes and out-door amusement;—thus ending a pleasant and successful week.

Part Second.

REVIEWS.

Diseases of the Kidney, and Urinary Derangements. By W. Howship Dickinson, M.D. Cantab. Part I. Diabetes. London: Longmans, Green, and Co.: 1875. Pp. 236.

This part is complete in itself and has a separate index. It is, we may say, based mainly upon Dr Dickinson's paper in the Transactions of the Medical and Chirurgical Society of London for 1870, in which he has certainly shown that a considerable number of cases of diabetes—to use the word tritely—are associated almost constantly with organic alterations of the nervous centres. This we may safely acknowledge to be true without accepting Dr Dickinson's conclusion. Even Dr Dickinson cannot do without the liver; "as the brain is the agent," he says, so "the liver is the instrument of glycosuria." But the liver is not dominated by the cerebrum, the pons, or the cord, and there are greater *a priori* reasons for believing that lesions of nutrition of these organs are far more likely to be secondary than primary, just as the pulmonary lesion is; the latter being not, as he very correctly says, tuberculotic in character, but rather a peculiar melting down of the lung tissue from malnutrition a formation of vacuoles—we call them cavities in the lung, of a character as entirely similar to the vacuoles in the nervous tissues as the structural differences of the two tissues permit. This history of diabetes is supplementary to those others already published, it is certainly not more true; but he who would write that full, complete, and perfect history of this disease, which has yet to be written, and which will occupy somebody's lifetime, must be acquainted thoroughly with the views here propounded. In regard to treatment, Dr Dickinson puts most faith in dietetics, and next to that in opium and codeia, and has seen no benefit from lactic acid. In this matter he differs from many other observers, who, without claiming any specific action from lactic acid, have obtained at least as good results from it as they themselves, or others, have from opium or any of its alkaloids.

This portion of the work concludes with a history of diabetes insipidus, which he also traces to brain injury in many cases, and in regard to the curative treatment of which he is equally sceptical as in respect of that of diabetes mellitus.

The whole work is well and carefully done, is perhaps the best and most comprehensive treatise of the kind we have, and only falls short of being as perfect as it could be in the present day by being one-sided, a one-sidedness which not only pervades its pathology, but which is felt to influence the therapeutics also.

We know very well that every organ and every function in the body is dominated by one special part of the nervous system; but while we acknowledge that, we also remember that derangement of any function is certainly not always nor even most commonly due to positive disease of that special nervous centre, but that in a large proportion of cases it is affected reflexly by derangement elsewhere, which may be either functional (*i.e.*, temporary) or organic—permanent, and that the curability of the so-called disease depends upon whether the existing lesion producing it reflexly is removable or not; and, lastly, we know that secondary lesions of organic character in various parts of the body, especially in the nervous system, are sure to follow any persistent lesion of nutrition, even although its cause be elsewhere and be removable, and that in seeking for the primary and dominating lesion, we must be careful to avoid mistaking any secondary nutritional lesion for that which is causative.

It is in this direction that vivisection is so important, and so unavoidable, because it is only by vivisection that we can ascertain the positive influence of any spinal nervous lesion. Therefore, while we fully sympathize with the public feeling as to the unadvisableness of vivisection as a means of class-teaching, especially of such simple matters as hæmodynamics, we feel that it is mainly by well-directed experimental vivisection that we can escape from the depressing influence of such works as the present. To be perfect, however, vivisection must be supplemented by the most careful pathological investigation; and to provide for that, the public must not only pay those well who treat them at second hand by means of the results attained, but must liberally provide for the foundation and maintenance of a School of Pathology on a basis wide enough to furnish data sufficiently precise to be useful in practical therapeutics.

A Manual of Diseases of the Heart. By ROBERT HUNTER SEMPLE, M.D. London: J. and A. Churchill: 1875. Pp. 296.

THIS is an excellent work on the diseases of which it treats, but its excellence consists mainly in bringing us up from the days of Laennec and Hope to the present standpoint of cardiac diagnosis; we are not conscious of any advance in that respect here made known. In this work, Dr Semple has carefully collated all the most advanced opinions published hitherto, or at all events most of them, but the result of this has not been so satisfactory as it ought to have been, for he says, "I think it probable that, in proportion to the accumulation of facts bearing upon the subject, the deductions drawn only from the physical exploration of the heart will not be so exclusively regarded as they have hitherto been." He is here, p. 105, speaking of the relations of cardiac disease to life assurance. But if we are not to base our opinions as to cardiac disease upon physical exploration, upon what are we to rest them? There is no doubt, as he subsequently states, that "cardiac disease, even of very decided and extensive character, *may* be compatible with long life and with moderate health;" but we may add, it is impossible to diagnose such cardiac disease without reference to the results of physical exploration, and there can be little doubt that the results of physical exploration, coupled with our knowledge of the physiology of the circulation, give us the only sure basis upon which to rest our prognosis. There is no doubt that loud murmurs and even very serious and coarse disease of the cardiac valves are not always incompatible with a reasonable expectation of life; but we hold that physical exploration is always capable of giving us a reason why this should be, provided we couple the results thus obtained with our otherwise acquired knowledge of the mechanism by means of which the circulation is efficiently maintained. None of Dr Semple's cases are incompatible with this view, but rather confirm it. Dr Semple regards the production of cardiac murmurs as due to friction solely—an idea which Poiseulle has completely set aside, while he entirely ignores the modern views of Chaveau and Marey; he is therefore incapable of understanding the full significance of many of the most important points in physical diagnosis; there is therefore little wonder that he undervalues it.

Another proof, if any were required, of the defective knowledge of Dr Semple in regard to physical diagnosis, is to be found at page 76, where, while acknowledging the existence of the presystolic murmur, he yet denies its easy discrimination. "I fully admit its existence," he says, as if that were a matter of any great moment, "but I am not convinced either that it is so common as some writers allege it to be, or that it is very easy of discrimination." Well, that only shows that Dr Semple does not know the presystolic murmur, for any one who knew it thoroughly would at once acknowledge that it could never be mistaken for anything else, or even itself be ignored. We observe with regret, that, in regard to the very important subject of the anatomy of the heart, Dr Semple misquotes the conclusions of Dr Pettigrew and never once mentions his name; we regret this the more, that we find other names coupled with facts and researches with which they have no other claim to be connected, than as simple exponents of the views of others. Dr Pettigrew, however, is an original investigator of the highest class.

Lectures on Diseases of the Respiratory Organs, Heart, and Kidneys. By ALFRED L. LOOMIS, M.D. New York: William Wood and Co.: 1875. Pp. 549.

IN the preface to this work the author says, "My custom has been, after careful reading and a close analysis of the subject of each lecture, to trust that the stimulus of the class would enable me to present the most recent views of acknowledged authorities, combined with the results of my own clinical observation and experience, in so simple, intelligible, and concise a form, that each student might fully master its prominent points."

Possibly enough the stimulus of the class answered its purpose, but it has not enabled the author to produce a work of any value. We open the book, or rather it has opened itself, at p. 328, Aortic Obstruction, and we find that the symptoms and physical signs described are those of disease of the aortic valves with regurgitation, and not those of aortic obstruction pure and simple. This, however, is really very much as we find the matter stated in most works on the subject. And the same may be said of all the rest of the work: everywhere we find evidence that the stimulus of the class has enabled him to remember fairly enough what he has read or otherwise learned of the prevalent views in regard to the subjects treated of, but there is no advance. This work is a mere re-statement of what we already know. Loomis is, however, a man capable of better things, and we are proportionately disappointed. It is, however, an average work so far as it goes, though the preface is rather repelling.

Consumption and Tuberculosis: Their Proximate Cause, and Specific Treatment by the Hypophosphites upon the Principles of Stœchiological Medicine. By JOHN FRANCIS CHURCHILL, M.D., Paris. London: Longmans, Green, and Co.: 1875. Pp. 632.

STŒCHIOLOGICAL physiology, upon which stœchiological medicine is built, appears to derive its distinctive epithet from στειχω, to go or proceed in order, and the employment of such a word in the conjunction in which it is used as a bait to tempt the unwary or unlearned, is a sufficient indication of the nature of this work, and the end for which it is published. The preface is very fine; it commences, "MORE THAN ONE HUNDRED THOUSAND persons are now suffering in England from consumption and the allied diseases of the tubercular type, of whom SIXTY THOUSAND will have died within the year, leaving their places to be filled by an equal number of future victims." But the man who wrote and deliberately published (the small capitals are his own) such a statement as this, had either little faith in his own vaunted "scientifically-conditioned specific for tuberculosis and consumption," or must regard his professional brethren—nay, his fellow-men—as scandalously indifferent to the sufferings of those they hold most dear. The thing is absurd; not even the ridiculous pseudo-scientific doctrine of phosphology, nor the fact that only Swan can prepare "my hypophosphites," would prevent them spreading like wildfire over the world, were even a hundredth part true of what Churchill here puts down as gospel. Tuberculosis, in all its varied forms, is too virulent a scourge of all that is best and most lovely in our race, to permit the paltry circumstances of quackish advertisement or of money value to prevent the adoption of any remedy which gave any prospect of proving a specific for its ravages, even though the scientific conditions of that specificity were by no means so apparently clear as those of the hypophosphites, as Churchill puts them. The history and sale of Cockle's antibilious pills, is sufficient proof of the willingness of mankind to adopt any remedy which gives relief, quite apart from any scientific reasoning as to its appropriateness.

We began with the preface, and to find the *raison d'être* of this book we need not go beyond the preface, for there we find it stated—"We know that if the waves of public opinion are to be studied, the first and one thing necessary is to raise the wind;" and if such a huge advertisement as the present is insufficient for that purpose, we really cannot advise the author to anything more likely to prove effectual.

On Winter Cough, Catarrh, Bronchitis, Asthma, etc. By HORACE DOBELL, M.D. Third Edition, enlarged, with coloured plates. London: J. and A. Churchill: 1875. Pp. 292.

LIKE all Mr Dobell's works—and he is rather voluminous—this is rather a patchy production, but a good deal of useful information is to be found in it, and as it gives an infallible specific for a cold, we cannot wonder, in this land of colds, that it has so speedily reached a third edition. The fact is, however, that colds still occur, and are not always cured either by Dobell's or any other magic mixture as yet discovered, so there is still room for a bold inventor. Medicated snuffs in nasal catarrhs are certainly good, and are often curative; and lozenges in catarrh at the back of the throat are always useful; but gum and white sugar are not nearly so good a vehicle for the medicaments in those cases as fruit paste; and for a tickling cough there is probably no better remedy than chloral lozenges taken occasionally; but we need not pursue the subject here, and for a great deal of information in regard to the prevention and cure of colds we must refer to the work itself.

Consumption in Australia. By C. A. REEVES, B.A., M.D. Melbourne: Brooks: 1874. Pp. 154.

ON arriving in the colony some fourteen years ago, the author was astonished to find the large number of cases in hospital suffering from chest disease, as he had been led to believe in England that it was unknown there. And it is with the view of giving information in regard to this matter that this work has been produced. One of the first sentences in the introductory part is well worthy of being remembered by every medical man; it is, "that to send consumptive patients out to Melbourne under the idea that they will be able to earn enough to keep them and yet get well, is a mistake." The climate of Australia is said to be becoming moister and colder, and with this change tubercular diseases, which were formerly rare, are now becoming more common, not only amongst European immigrants, but even amongst those born in the colony. So much is this the case, that in 1859, with a population of 517,226, the deaths from consumption alone amounted to 632; they have gradually increased year by year, till in 1868 they amounted to 733 in a population of 671,222. All this is information of a very important character, for our opinion as to a climate to be selected for a pulmonary invalid is often inquired; and Australia is frequently mentioned as one, the suitability of which we are requested to determine. According to Dr Reeves, we should be very cautious in recommending the climate of Melbourne, at all events, which is known to be variable, and seems to be deteriorating.

A Practical Treatise on the Diseases of the Ear; including the Anatomy of the Organ. By D. B. ST JOHN ROOSA, M.A., M.D., Professor of Diseases of the Eye and Ear in the University of the City of New York, etc., etc. Illustrated by wood-engravings and chromo-lithographs. New York: William Wood and Co.: 1873.

THIS work contains 535 pages, and is divided into four parts: 1st, Introduction and External Ear; 2d, Middle Ear; 3d, Internal Ear; 4th, Deaf-mutism and Hearing-trumpets. The first fifty pages or so of the text are entitled "A Sketch of the Progress of Otology." Our author commences as early as 460–370 B.C., "from the days of the philosopher of Cos." He says, "A singular apathy in regard to the maladies of one of the most important organs of the body, an inexplicable ignorance as to their results, a most irrational and empirical manner of treatment, have been our heritage from the fathers. Probably to-day, in the closing years of the nineteenth century, there are more practitioners of medicine who view aural medicine and surgery from the standpoint of the errorists of the dark ages, than there are in any other field. It is to be feared that even now many wise and skilful men do not know that, to drop stimulating or even anodyne applications upon a membrane which they have never examined, to probe an ear for what they cannot see, are purely empirical practices which every conscientious physician should hold in abhorrence."

The intention of the author is successfully carried out. He states at the beginning of the preface that—"This work is intended to be a guide to those who wish to treat diseases of the ear." The directions for examining aural patients are very explicit, and the chromo-lithographs illustrative of the appearance of the membrana tympani are exceptionally good. "The perspective of the lithographs in this work is strikingly brought out by viewing them through any short tube, but preferably with the ordinary aural speculum."

Otitis parasitica, a disease which appears to be more common than heretofore supposed, is thoroughly explained by accurate woodcuts and a fully condensed experience of authors on this topic.

The chapter on Injuries of the Membrana Tympani shows that, although many injuries to this part of the ear arise from unavoidable causes, unskilled manipulation may perforate or destroy this delicate membrane. The chapters of this work which contain the author's experiences and views upon chronic non-suppurative inflammation of the middle ear, are the prominent features of this treatise. The author divides the so-called chronic catarrh of the middle ear into (1) Chronic catarrhal inflammation, and (2) Proliferous inflammation.

The chapter on Acute Suppuration of the Middle Ear shows that the treatment of this form of ear disease is not only rational and successful, but is demanded, by the exigencies of the case and the evils of neglect, from every intelligent and conscientious physician. If any one should doubt the desirability of treatment in acute otitis media, he has but to peruse the chapter on Chronic Suppuration of the Middle Ear and its fatal consequences, in order to have a good reason for changing his opinion. "The general health of a patient affected with chronic suppuration of the middle ear is usually impaired, even if none of the serious consequences have occurred. Such a drain is not tolerated with equanimity by nature. Dr Hackley has found albuminuria in a number of cases of chronic suppuration of the middle ear, where there was no apparent cause for the disease, except the long-continued secretion of pus from the tympanic cavity." Our author, after giving a table of cases "compiled from various sources, which illustrates in a striking manner the fatal consequences of some cases of aural disease," concludes this portion of the work with a reference specially to the above-mentioned table of cases.

"Taken in connection with the fact already stated, that suppuration of the ear is more frequently the cause of cerebral abscess than any other one disease, these cases form a complete justification, if one were needed, for the giving up so much space to the consequences of chronic suppuration of the middle ear. If the table should startle some mind hitherto inattentive to this subject into a realization of its grave importance, and lead to a more careful consideration of an ulcerated middle ear, it will have accomplished its object."

The remaining pages of the book are devoted to the anatomy and diseases of the internal ear, and to deaf-muteness and to hearing-trumpets. The book will be read by many with interest as well as instruction.

Lectures on Diseases and Injuries of the Ear: Delivered at St George's Hospital, by W. B. DALBY, F.R.C.S., M.B. Cantab.; Aural Surgeon to the Hospital. London: J. and A. Churchill: 1873.

THIS book of 220 pages or so is divided into eleven short lectures on the more important features of "Diseases and Injuries of the Ear." They were originally delivered, as the first course on Aural Surgery, at St George's Hospital. They appeared in an abstract in the *Lancet* during the latter half of the year 1872. Among the lectures, we would single out the fifth as the best, but they are all very good, and, as we are informed in the preface, "were given in a conversational manner in the out-patients' department, and as opportunities occurred were illustrated by cases under observation at the time." They contain the substance of the diagnostic and therapeutical knowledge of the day so far as it pertains to Otology. The anatomical and physiological facts are but lightly touched upon. In the fifth lecture, the diagnosis and treatment of non-purulent catarrh of the middle ear are carefully and clearly set forth, and furnish, therefore, a very valuable guide to any one who has to treat a case of this disease. In the seventh lecture, the subject of aural polypi is very thoroughly treated, accompanied by some " beautifully-executed drawings, showing the structure of these bodies, by Dr Whipham." Dr Dalby recommends the use of " fine fishing gimp " instead of wire, in the formation of the snare in Sir William Wilde's instrument. Our author justly attaches great importance to the treatment of chronic discharge from the ear. At the close of the eighth chapter, the following passage occurs:—" But inattention to the discharge may at any time place the patient in a position of great peril. For this reason I believe that a discharge from the ear is regarded by insurance companies as an element aganist granting a policy, or, at any rate, demanding an increased premium. I can only say that, if it is not so regarded, it would be, if the companies consulted their own interests." The perusal of this book has been not only instructive, but extremely pleasurable, and we are glad to acknowledge the addition of such a volume to the literature pertaining to Otology.

Principes de Thérapeutique Générale, ou le Medicament étudié aux Points de Vue Physiologique, Posologique, et Clinique. Par J. B. FONSSAGRIVES, Professeur d'Hygiène et de Clinique Spéciale des Enfants et des Vieillards à la Faculté de Médecine de Montpellier; Médicin en Chef de l'Hôpital Général de cette ville. Paris: Baillière et Fils: 1875. Pp. 472.

M. FONSSAGRIVES is very well known as the translator and annotator of Walshe on Diseases of the Chest, and also as the author of several works, chiefly upon subjects connected with hygiène. In the present volume he treats of " the remedy" abstractly, from every point of view, physiological, posological, and clinical; beginning by defining what a remedy is, and following up this definition by arguing as to the necessity for remedies, the uses of expectation, the origin of remedies, the fluctuations that have occurred in the estimation of different remedies, on which a volume itself might be written; and so on he goes, inquiring into everything connected with the use or abuse of a remedy; always abstractly, and concluding with a methodic grouping of remedies according to the clinical intention with which the remedy is employed. The work is philosophically written, and well worthy of consideration. One of the truest bits in it is when, speaking of Sydenham's statement—" Perinde est periti medici, quandoque nihil agere, atque alio tempore efficacissima adhibere remedia"—he says, "C'est là évidemment le langage de la vraie et de la bonne médecine. Le praticien

qui, ne croyant pas à son art, ferme les yeux de son esprit et attend, est indigne de la tâche qu'il a l'air de remplir; c'est un sceptique; celui qui ne croit à son art que quand il a les mains pleines de médicaments est un brouillon dangereux; celui qui raisonne son inaction comme son intervention est un medicin." "If a man only makes pins," said Diderot, "he must be an enthusiast, or he will never excel in his trade;" but a man can never be enthusiastic about what he cannot love, and he cannot love or esteem anything in which he does not believe; consequently want of belief reacts upon a man's practice, and prevents him taking the pains needful to discover the proper method of employing any remedy, the proper cases in which to use it, or even the proper dose in which to administer it; but a careful consideration of all these matters is most necessary to attain success in the treatment of disease. Lamure openly boasted of his want of faith in medicine; "Parbleu!" said Barthez; "if he refers to his own, I think he is quite right."

The Diseases of Tropical Climates and their Treatment. By J. A. B. HORTON, M.D. Ed. London: J. and A. Churchill: 1875. Pp. 669.

THE author claims indulgence from the reader for deficiencies and shortcomings, as the proofs had to be sent to him to the coast of Africa, where he was busily engaged in the late Ashantee campaign; but really this is no excuse for the frightful blunders we find scattered through it. We do not know the Ashantee language, but suppose "eructory" is an expressive word imported from it. He says that Dr Wood regards the liver as "an eructory,"—whatever that may mean. Again he quotes the views of Dr Chambers, whom he calls Chalmers in the text, and in the reference note makes to be the author of "Lectures, chiefly Chemical."

These are only two samples out of many; and really we think the world could have waited very well till the conclusion of the campaign, for the sake of getting a more accurate book—all the more that the work is merely a loose compilation of the views of others. It is not thus, however, that Indian medicine is to be advanced, but by careful original investigations in connection or extension of those which have preceded them. There is nothing of that kind, however, in this work; and though it savours a little of antiquity, it is somewhat refreshing to find, in a work on tropical diseases, no mention of the muriate of ammonia in the treatment of hepatic affections, and also to have bloodletting strongly recommended as a curative agent in hepatitis.

On Alcohol: A Course of Six Cantor Lectures delivered before the Society of Arts. By BENJAMIN W. RICHARDSON, M.A., M.D., F.R.S. London: Macmillan and Co.: 1875. Pp. 122.

AT the time they were delivered, these lectures excited a great amount of public attention; and we cannot wonder at it; they contain some curious historical facts, a great deal of interesting chemical information, and a considerable amount of popularized physiology,—just that striking, agreeable smattering of science which pleases the public, and makes them believe they know a thing or two. The conclusion Dr Richardson arrives at in his summary is, that alcohol is an agent whose entrance into the living organism "is properly limited by the learning and skill possessed by the physician—a learning that itself admits of being recast and revised in many important details, and perhaps in principles." We agree with this conclusion, and would apply it to many of Dr Richardson's own statements, as well as to those more generally held by the profession. For while we deplore the evil arising from the intemperate abuse of alcoholic drinks, we doubt if alcohol be rightly credited with much of the disease so often attributed to it, and are inclined to think that a good deal may be said from Hector Boece's point of view, when, in speaking of Orkney, he says, "Howbeit the pepill be gevin to excessive drinkin, and be plente of beir makis the starkest ail of Albionn, yet nane of them are sene wod, daft, or drunkin, als they come haill and feir in thayr bodyis to extreme age, but ony use of medecynary with strang and faire bodyis."

The Journal of Psychological Medicine and Mental Pathology. Edited by LYTTLETON S. FORBES WINSLOW, M.B., D.C.L. New Series, No. 1, April, 1875. London.

THIS is a new journal on Insanity and subjects akin, or it may be called a revival of an old journal of the same name, edited by the late Dr Forbes Winslow during a period of sixteen years. Apparently it is to be published twice a year. The body of the present number is composed of essays upon such subjects as Materialism, Will and Volition, Mind, The Delusions of the Insane, Religious Insanity, Treatment of Melancholia, Dipsomania, and Opium-eating. There is also an article on the Artificial Feeding of the Insane, and a Case of Curious Hallucination of Satanic Possession induced by vesical calculus. There are a few reviews on works treating of the Nervous System and its Diseases.

The article on Materialism is a critique upon Dr Tyndall's address at Belfast last year, by Dr J. Winn; not without vigour of argument, but somewhat spoiled by personalities. The essays in general are well written, but it might be said of almost all of them that they contain nothing which might not have appeared twenty years ago. A periodical should surely deal with the subjects which interest the time; for example, we have a great deal of discussion at present about the functions of the hemispheres and the meaning of the different experiments made upon them by Fritsch, Hitzig, Nothnagel, Ferrier, Carville, and others, of which one likes to hear the last word.

A journal of this kind should also have a résumé of what is doing in other countries. It is this which makes the Chicago Journal of Nervous Diseases so interesting. There is a good deal of clipping and translating done, but the reader learns everything which is going on throughout the world in the department in which he is interested. It is possible the editor will have all this added and amended in the next number; and we should be well pleased if a periodical of this kind, not smacking so strongly of Materialism as the Journal of Mental Science, were able to hold its own.

Note on the Treatment of Skin Diseases. By ROBERT LIVEING, A.M., M.D. Cantab. London: Longmans, Green, and Co.: 1875. Pp. 116. Third edition.

THIS little and useful book has had a most deserved success, and we cordially recommend it as a very handy pocket manual for the student. The descriptions are concise and accurate, the explanation of the definitions useful, and the prescriptions well chosen.

The Maintenance of Health: A Medical Work for Lay Readers. By J. MILNER FOTHERGILL, M.D. Edin. London: Smith, Elder, and Co.: 1874. Pp. 399.

DR FOTHERGILL not only possesses the pen of a ready writer, but he has also an acute and logical mind; he can not only see things clearly himself, but he is also able so to put them before the reader that he too is able to appreciate the truthfulness of the picture. With here and there some crudeness of statement and some hastiness of generalization, which a larger experience will undoubedly lead him by-and-by to modify, this work is written in such a genial style, and with so much eloquence of language, as to ensure its well-deserved success.

There is, as the author well observes, no such thing as a definite ideal state of health; we are always oscillating between two extremes, and what we term health is a hypothetical condition evinced rather by negative than by any positive properties. We believe ourselves to be in a state of health when, as John Brown has said, we find all our functions discharged in a pleasant, easy, and exact manner; and that being the case, we do not trouble ourselves to ascertain whether or no we come up to any ideal standard, whether it be that of Gregory, of Celsus, or of any other. From this point of view, Dr Fothergill's work is more logical than its title; for while we cannot maintain an unstable hypothetical condition, we may certainly avoid whatever tends to make our vitality oscillate beyond the range of health—we can avoid becoming ill; and in this respect this work may prove to many a most judicious Mentor. Each chapter is concluded by a series of propositions, which give at once a summary and an index to its contents, and serve to impress upon the memory the important points commented on. We have much pleasure in recommending this work to our readers as one from the perusal of which they may not only derive much pleasure and profit, but which they may also commend to their patients as one from which they also may gain much information, which it is important for them to know in the guidance both of themselves and their families.

Therapeutic Means for the Relief of Pain. By JOHN KENT SPENDER, M.D. Lond. London: Macmillan and Co: 1874. Pp. 230.

THIS is the prize essay for which the Medical Society of London awarded the Fothergillian gold medal in 1874. It is a very useful compendium of every possible therapeutic means which has ever been employed for the relief of pain, and of all the various modes in which these remedies have been employed. It is, as we may suppose, rather an omnium-gatherum, and includes everything, from sulphate of nickel to moral influence; but the variety is useful, and he who patiently looks through it will be sure to find some scrap of information to reward his perseverance.

Essays on Conservative Medicine and Kindred Topics. By AUSTIN FLINT, M.D. Philadelphia: Henry C. Lea: 1874. Pp. 214.

THESE essays are the product of a philosophic mind, and are possessed of considerable general as well as professional interest. They are semi-popular in character, and traverse a wide field, exhibiting a varied and extensive knowledge of medical literature, a firm confidence in the future of medicine as a scientific art beneficial to mankind, and an equally firm trust in the Divine wisdom and beneficence, even as exhibited in the prevalence of disease and death. We know of few books more pleasant to read or from which a greater amount of interesting information may be gleaned. We would desire, however, to correct the words which he puts—after Dickson—into the mouth of the dying Dr Adams: "It is beginning to grow dark; let the boys be dismissed." What he did say, as we have often heard from one who knew, was more simple, more likely to be the words he had often previously used, and therefore all the more pathetic: "It grows dark, boys; you may go." Like Napoleon on the brink of eternity, dreaming of his former career, and mumbling about the tête d'armée, so Adams dismissed himself from this sublunary scene with the selfsame words with which doubtless he had so oft before let loose his class upon a winter afternoon.

The Breath, and the Diseases which give it a Fœtid Odour. By JOSEPH W. HOWE, M.D. New York: D. Appleton and Co.: 1874. Pp. 108.

FŒTID breath arises from so many different causes, and is so offensive to his neighbours, if not to the patient himself, that an inquiry into these causes, and the best mode of removing or alleviating it in each individual case, cannot fail to be of interest to many. We know of no other work upon this subject so comprehensive as this one is, or to which we can apply with so much certainty of getting some information both as to cause and cure in any given case.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LIV.—MEETING X.

Wednesday, 21st July.—Dr G. W. BALFOUR, *Vice-President, in the Chair.*

EXHIBITION OF PATHOLOGICAL SPECIMENS, PATIENTS, ETC.

I. *Dr Littlejohn* showed—(1.) The SKULL-CAP, with membranes attached, of a man who had died suddenly in the hands of the police. He was a notorious drunkard, and it was feared that he might have sustained some ill-usage at the hands of the police-officers. A companion, who was apprehended at the same time, made a great effort to escape, and at the moment deceased, who was walking quietly, sank to the ground dead. The diseased condition of the heart, liver, and kidneys, satisfactorily accounted for his sudden death. The dura mater could not be detached from the cranium, and, in addition, developed in the falx, there was a prominent osseous mass, the size of an almond. The brain was somewhat atrophied, and had not been injuriously pressed upon. Deceased had had repeated attacks of delirium tremens, thus explaining the unusual adherence of the membranes, but he had no symptoms referable to the ossification of the falx.

(2.) A portion of the SMALL INTESTINES, with mesentery, of a boy æt. 7, whose death, preceded by urgent vomiting, had excited some inquiry. Deceased was illegitimate, and no medical man had been summoned by the mother. A large portion of the small intestine was of an intensely black colour. There was no peritonitis. On examination, the discoloured portion of intestine was found to be strangulated, having passed through an opening in the mesentery, the size of a small orange, and with rounded edges. It required some force to restore the bowel to its normal position. The cause of death being thus satisfactorily made out, no further proceedings were taken.

II. *Dr G. W. Balfour* showed—(1.) ROSENTHAL'S APPARATUS FOR WASHING OUT THE STOMACH IN CASES OF DILATATION, a description of which appeared in this Journal for August, p. 136. It acted on the principle of the syphon, and there was therefore no pump required. It thus avoided all danger of injury to the stomach-coats, such as laceration, ecchymosis, etc. He had used it with great advantage, especially in one case where there was great dilatation due to pyloric constriction. He only wished further to mention that this method of treating dilatation of the stomach had been first proposed by Kussmaul.

(2.) A PATIENT who had shown, three months ago, all the characteristic symptoms of LOCOMOTOR ATAXY. He was quite unable to walk, or to stand with his eyes shut; now he was, however, able to stand tolerably firmly when his eyes were shut, and also to walk about with considerable ease; his characteristic pains had also ceased. His case was only a sample of many similar recoveries. Its completeness was, to a certain extent, due to the recentness of the case; but in another instance the cure was so complete that he at first suspected "malingering;" but the fact that the patient, whom he frequently saw, had never tried it on again, though he still remained poor and in need of assistance, was against this supposition. The treatment employed was that first proposed by Wunderlich, and consisted in the administration of half-grain doses of nitrate of silver, night and morning, for six weeks continuously. Its use was then broken off for two or three weeks, and if necessary again resumed, until about a drachm, or a drachm and a half, of the drug had been used. By this a cure could be effected without any blackening or discoloration of the skin. In one special case of a patient from Newcastle, there was also myosis of the pupils and loss of sensation over the whole of the body except about three finger-breadths round the waist. The latter had been restored by the use of a mild Faradic current, administered by putting the sponges into two pails of salt and water, where the patient's feet were. This treatment had been successful in German, French, and British hands, and it certainly seemed capable of arresting the disease, and removing all that portion of the symptoms merely of functional origin, though, of course, it could not be expected to remove any organic changes which had occurred.

III. *Dr G. W. Balfour* next gave an ACCOUNT OF THREE PATIENTS who had been much benefited by the use of large quantities of raw onions, which had acted as a diuretic. The first case was that of a woman who had suffered from large white kidney and constriction of the mitral valve. Her abdomen and legs had been tapped several times, but after using the remedy given above, she had been free from dropsy for two years, although still suffering from albuminuria. In the other two, one suffered from cardiac disease, cirrhotic liver, and ascites; the other had ascites, depending on tumour of the liver. In both of these, the remedy had been given with good results. Both had been previously tapped, purgatives and diuretics alike having failed to give relief; and it was only upon finding that the fluid was steadily reaccumulating in spite of treatment, that recourse was had to the onions. Under their use the amount passed steadily rose from ten or fifteen ounces to seventy, eighty, and a hundred ounces in a few days.

IV. *Dr Watson* showed—(1.) A CALCULUS consisting of oxalate of lime, with a slight incrustation of triple phosphate, removed by the lateral operation. The patient was twenty-five years of age, and had evidently suffered from birth. He was sent to Dr Watson in order to have the stone crushed, but on sounding it was found that, owing to the composition of the calculus, lithotomy was preferable.

(2.) A SMALL CALCULUS, removed in the "eye" of Clover's washing catheter. One curious fact was that the patient, who had always been of a peculiar mental temperament, slept profoundly the night after the crushing, and next morning manifested maniacal symptoms, which, however, soon passed off.

(3.) The DETRITUS OF A CALCULUS, about the size of a pigeon's egg, removed in five crushings. The peculiarity in this case was that the bladder was almost intestinal in shape instead of ovoid, and, therefore, even when it contained six ounces of water, the patient had to lie on his side to permit of the calculus being readily seized.

(4.) A SARCOMATOUS TUMOUR OF THE LOWER PART OF THE FEMUR. Before operation, the case looked like chronic rheumatic arthritis.

This, however, could hardly be, as it only affected one part of the articulation. On an exploratory incision being made, the knife passed in for about four inches before it touched any solid substance. The tumour seemed to be growing between the lower epiphysis and shaft of the femur. This explained the agony suffered by the patient, and also allowed of amputation in the middle third of the thigh, instead of at the hip-joint, which was the situation more usually recommended in such tumours affecting the femur.

(5.) A CAST OF A DEFORMED LIMB on which he had operated. The patient had, by accident, alighted heavily on the sole of his foot, so that it was displaced outwards. An irregular practitioner, who was consulted, declared that it was dislocated, and, after violently wrenching it back, applied splints. After a month these were removed and the deformity discovered. His medical man advised the patient to consult Dr Watson. On examination, it was found that the injury seemed to have been analogous to Potts's fracture, with alteration in the position of the astragalus, terminating in anchylosis at the ankle-joint. In operating for the relief of this condition Dr Watson divided the fibula, and cut out the astragalus by means of a J-shaped incision on the outer aspect of the limb. It was then found that the astragalus had been rotated, so that its upper and lower surfaces were lateral, and the os calcis accordingly separated from the tibia by a greater interval. Since the operation the patient had done well, and he had no doubt but that the result would be a useful limb, with little shortening. This was the third occasion on which Dr Watson had operated for the relief of a similar condition.

(6.) The contents of an ANEURISMAL SAC. The patient was a man who had injured his left shoulder by falling against the tram of a cart. The medical man who was consulted had apparently thought that it was only a bruise. He, however, caused the arm to be kept in a sling. A week after, the patient felt his arm so easy that he began to work as usual. It, however, began to swell after this, and on admission into hospital, about a month after the swelling came on, the following was found to be the state of the left arm:—It was swollen, dusky in colour, and with sensation diminished. There was a swelling in the deltoid, pectoral, and axillary regions, and the axillary glands could be felt pushed towards the surface. Fluctuation was distinct, but there was no pulsation nor bruit. A small trocar was introduced to help diagnosis, when a gush of arterial blood showed the aneurismal nature of the swelling. After the puncture, pulsation became visible, and a double bruit could be heard on applying a stethoscope. Next day at the time of operation there was hardly any pulsation, and no bruit. Dr Watson determined, after consideration, to lay open the sac with the subclavian compressed, to restrain hæmorrhage. He was in doubt whether he should first cut down on the subclavian, so that it could be directly compressed, as Professor Syme had recommended and practised, or whether he should trust to indirect pressure above the clavicle. From the spareness of the patient, Dr John Duncan expressed himself as able to restrain all hæmorrhage by the latter means. Compression therefore being applied in this way, Dr Watson proceeded to operate as follows:—He made a limited incision at the site of the puncture with the trocar. His finger was then introduced, and on the pressure on the subclavian being relaxed, he could feel a gush of blood from below the pectoralis minor. It was also found that pressure on one point prevented this gush. The incision was then enlarged, and the pectoralis minor cut through. The external cutaneous nerve and the open mouth of a vessel could then be seen. This latter was the lower end of the axillary artery, and was accordingly tied. By again relaxing the pressure on the subclavian, the upper end was discovered and tied also. Bleeding, however, continued from a small collateral branch, and it, along with some others, was therefore secured. It was then found, on examination, that the inner side of the capsular ligament was torn, so that there had been a complete or partial dislocation at the shoulder-joint. On the day following the operation the patient was well. Next day, however, there was a gangrenous patch, and this had progressed so far on the third day after the operation that it was necessary to amputate at the shoulder-joint. On dissecting the arm, it was found that the axillary vein had been injured at the time of the accident, as it was occluded by a clot. It was further interesting to note the laminated nature of the clot produced by the ligature, and the loose nature of the one occupying the cavity, considering that in this case the length of time during which the aneurismal condition was definitely known.

V. *Dr J. Batty Tuke* showed the RIGHT CORPUS STRIATUM of a patient who had been the subject of constitutional syphilis, and who, for three years previously, had suffered from chronic mania. On the 15th of June, he had become suddenly unconscious and paralyzed on the left side, the pupils being equal. This, however, passed off slightly in the leg; but he ultimately died on the 22d. On post-mortem examination, ten points of miliary apoplexy were found at the broadest portion of the right corpus striatum. This was immediately over the spot said by Burdon-Sanderson to be concerned in the movements of the leg and arm. He could not, however, account for the complete loss of consciousness. There were many other points of interest in connexion with this case, which he hoped to lay before them on a future occasion.

VI. *Dr Cuthbert* then read an account of A CASE OF ACCIDENTAL POISONING OF A CHILD 2¼ YEARS OLD, BY TWO DRACHMS OF BOW'S LINIMENT. (This paper will appear in an early number of this Journal.)

Dr A. Macdonald thought it would hardly be right to allow this interesting case to pass without complimenting Dr Cuthbert on its successful termination. He certainly thought it strange, notwithstanding the prompt and energetic measures adopted, that the child should have lived. He felt confident, however, that the danger of death from opium in the case of children was over-estimated. While it might be specially dangerous in the case of very young children, there was certainly less risk in those above two or three years of age than was popularly believed to be the case. He remembered two cases of opium poisoning that had occurred to him in the course of practice, and which had brought him to the conviction he now held. One was that of a little boy two years old, who, after swallowing a grain of opium, although he became deeply comatose, recovered. The other, a child two or three years of age, got a teaspoonful of laudanum instead of syrup of senna. He recovered in about fourteen hours, although the laudanum had been absorbed before the mistake was found out. Still, the amount of opium swallowed by Dr Cuthbert's patient should have killed not one but many children, and he certainly deserved great credit for his energetic efforts.

VII. *Mr Bell* then read his NOTE ON A CASE OF MALIGNANT PUSTULE, which will appear in a subsequent number of this Journal.

Dr Balfour felt sure that the Society was obliged to Mr Bell for his interesting case. The disease, in its essential pathology, was closely allied to the plague in man; it was not therefore a mere local affection, but a continued fever of malignant type, and death was due, not to the carbuncle, but to the blood-poisoning which accompanied it.

Dr Watson remarked on the interest of the case. He himself had only seen one case in the person of a cow-keeper, residing in Home Street, Edinburgh. When called in, he found the pustule on one finger. The whole arm was swollen, and free incisions were made into it. The man, however, died of pyæmia. At that time he read the literature of the subject in a French work, by M. Bourgeois. The facts narrated in that book were very much the same as those given by Mr Bell, without the antiseptic and microscopic elements. The disease was traced to cattle coming in autumn from the north of Italy and Hungary. From a Hungarian gentleman Dr Watson learned also that at that season annually many cattle died of it. Fortunately for cow-keepers and the public generally, the disease was not apparently communicable by the meat when used as food. In Liston's Surgery, there was a notice of a carbuncular epidemic in the Western Islands, affecting those of the inhabitants who had fed on the carcases of some animals cast on the shore, and which therefore were believed to have been affected with this disease, but no corroboration of this view was found elsewhere.

VIII. *Mr Chiene* then read his NOTE ON THE AFTER-TREATMENT OF EXCISION OF THE KNEE-JOINT, in which he advocated the value of the extension apparatus, which will appear in a future number.

Dr Balfour had listened to the paper with much pleasure, and would be glad to hear the views of the surgeons.

Dr Watson had, perhaps, hardly a right to make any remarks upon this method of after-treatment recommended by Mr Chiene, as he had made no experiment of its employment. He might, however, say, that with increased experience in its employment he found no reason to be otherwise than pleased with the method of after-treatment he had now for several years employed. He could further say, that when properly applied, he found no difficulty in employing antiseptic dressings to the area of the operation according to the strictest method of the antiseptics. In saying so, however, he wished to guard himself against the supposition that antiseptics produced any miraculous results in such cases, as he had certainly obtained quite as satisfactory and certainly more speedy results before employing antiseptics than since. He knew quite well that these antiseptic gentlemen attributed failures, not to the method, but to the application of it in any given case. Everything which kept sweet was a successful example of antiseptic treatment, everything which became stinking was due to the imperfections on the part of the operator. It was refreshing to hear, at all events from a stanch supporter of antiseptics, the admission that, even with their employment, suppuration occurred. Not very long ago, the antiseptics claimed that wounds healed under their method without even suppuration. "A few drops of *serous* discharge" was at all events all they admitted as the discharge from the antiseptic method. Time had apparently modified these views; and other causes of suppuration than "germs" were now compelled to be admitted. The party was obviously undergoing education. A little further experience in the practice of surgery would probably bring them round to the good old paths; but then probably students who knew no better might then be taught that all these things were the outcome of "antiseptic surgery." Apparently excisions of the knee-joint did not heal by this extension method, combined with "box" splints, and "antiseptic precautions" and after-treatment, any more rapidly than where other methods of after-treatment and no antiseptics were employed; and apparently that was pretty nearly all that could be said by any one of real experience in the practice of surgery. Dr Watson was not so enamoured of his own plan of treatment as to exclude his trying those which were either fashionable in other quarters or in the practice of his colleagues, but so long as he found the method by an immovable apparatus which required no disturbance of the parts at each dressing, to succeed as admirably as he had done in the past, he did not see the advantage of adopting other and more troublesome methods of after-treatment.

Mr Bell wished to supplement what Dr Watson's modesty had omitted. In lecturing to his class on the results of excision of the knee-joint, as watched by him in the Edinburgh Infirmary, he was accustomed to state that, prior to the use of Dr Watson's method, they were bad, while after it they were good. One advantage of Dr Watson's plan was, that the patient could move his body in any direction, while the limb was kept firm. He might do this under extension, but if he altered the axis of the limb, it would not be so good. With Dr Watson's splint, it was difficult to carry out antiseptics. He had never lost a case after excision of knee, and in his last case he had got an exceedingly good result without antiseptic treatment. He thought that Mr Chiene's plan would not be so satisfactory in a patient over twenty-five years of age.

Mr Chiene was glad to hear the expression of opinion. In his own case, he was struck with the comfort of the patient. The weight seemed to steady the limb. To-day he had raised it, and he was struck by the fact that the extensors contracted, and an anxious expression came over the patient's face. He would certainly give extension a further trial.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXIV.—MEETING IX.

Wednesday, 12th May.—Dr J. MATTHEWS DUNCAN, *President, in the Chair.*

I. *Dr Foulis* read a paper (communicated by the President) on the DEVELOPMENT OF CYSTS IN THE STROMA OF THE OVARY. He showed that, in the normal Graafian follicles, and in the cysts of the diseased ovary, the epithelium was developed from the corpuscles of the connective tissue, of which the stroma consists. The stroma of the adult rabbit's and cat's ovary is very remarkable, in that it consists almost entirely of little fusiform fibre-cells, and it is an extremely important observation that, even in the adult ovary, the cells of the membrana granulosa may be actually traced in their development from those fibre-cells which lie immediately round the embedded eggs. Dr Foulis has preparations of the human ovary from a woman about 30 years of age, in which the greater part of the stroma is converted into cells exactly similar to those which constitute the cells of the membrana granulosa. In the old cat's ovary, one may see the fibre-cells of the stroma very beautifully, and also trace the development of the membrana granulosa cells from these. On the surface of such an ovary the germ epithelium can still be seen, and on comparing the cells of the germ epithelium with the young developing cells of the membrana granulosa, we are at once struck with the great difference in their appearance; and it can be seen that the germ epithelium on the surface of the old cat's ovary has no possible connexion with the fibre-cells around the embedded eggs, which give rise to the cells of the membrana granulosa. The same can be equally well seen in the adult rabbit's ovary. The observations, as illustrated in the old cat's ovary, appear to Dr Foulis to afford the most conclusive proof that Waldeyer's view, that "the cells of the membrana granulosa are developed from the germ epithelium," is incorrect and untenable. [A paper on the Development of Cysts in the Stroma of the Ovary, by Dr Foulis, will appear in an early number of the Journal.]

Dr Macdonald had listened with much pleasure to the paper. The preparations exhibited were very convincing of the truth of Dr Foulis's physiological theory, and, in his opinion, he had proved his point; for they certainly seemed to show that the cells of the membrana granulosa are formed of connective tissue corpuscles, and are of different origin from the ova. His only difficulty was, that in some of the preparations of the very early ovary, he thought he had seen minute ova, with elongated cylindrical-shaped cells round them.

Dr Simpson agreed with Dr Macdonald as to the value of the paper, but thought there was not much room for discussion. He felt like a learner listening to one who had made himself a master of the subject. Dr Foulis's demonstrations were very convincing of the fact, and he believed it to be a new one in physiology, that connective tissue cells can be developed into structures so different from them as the cells of the membrana granulosa. He would like to ask Dr Foulis how he distinguished between the cells of the membrana granulosa and those of the germ epithelium on the exterior of the ovary; they seemed very much alike, and Waldeyer would say they are identical. Turning to the pathological part of the paper, it was certainly a very interesting fact, that these connective tissue cells can take on the growth and development described,

Dr Keiller expressed his admiration of Dr Foulis's paper; it carried him back to the days when he heard his old friend and fellow-student Dr Martin Barry read a paper on the same subject. He thought he had made a great step in advance at that time, and now Dr Foulis appeared to have gone a step farther. He took it for granted that Dr Foulis must be right in the main, from the fact that Dr Allen Thomson, an old and excellent authority on the subject, had expressed at the Royal Society his belief in the correctness of Dr Foulis's views.

Dr Matthews Duncan hoped that Dr Foulis's work would meet with an earlier recognition than Dr Martin Barry's had done, for it was not till after his death that the value of his work was fully recognised. The paper entered into three important subjects:—(1) The development of the ovum: in this Dr Foulis had gone over the same ground as Waldeyer, but had extended and improved upon the observations of that writer; and here it was he had shown most originality, and certainly his views appeared to be the true ones. Closely connected with this was (2) The development of epithelium from connective tissue, a point on which there was the greatest disagreement among observers. The side taken by Dr Foulis was quite evident; he did not believe in the old notion of all the organs of the body being developed from three primordial layers of the embryo—and indeed these views had been quite overthrown by the observations of Dr Thin and others. The third point was the history of the production of cysts; and here he supposed that when Dr Foulis spoke of cysts as being developed from collections of connective tissue corpuscles, he referred only to the cysts of a multilocular cystoma. Here too his views were original, but not so much so as in other points.

Dr Foulis, in reply, expressed his gratification at the way in which his paper had been received. With regard to Dr Simpson's remarks, he stated that in the developing ovary, say of a human fœtus of seven months, the corpuscles of the germ epithelium, and those of the connective tissue, are so different in appearance, that no mistake could arise if you look at them side by side. Moreover, if we carefully examined those groups or clusters of germ epithelial corpuscles embedded in the meshes of the stroma of such an ovary, we should find that all the corpuscles swell up, and become large, globular, and vesicular bodies, none of them retaining their original columnar form and small size; nor do they undergo division to produce the cells of the membrana granulosa, as stated by Waldeyer. But it could be seen that much smaller fusiform connective tissue corpuscles of the stroma work their way in between the developing germ epithelial corpuscles, and from these the cells of the membrana granulosa are produced. All these facts could be seen in the various preparations exhibited. It is the nuclei of the connective tissue corpuscles which enlarge, swell out, and become vesicular, and when fully developed they certainly do resemble the germ epithelial corpuscles on the surface of the ovary, but not at an early stage of their development. He had been much struck with the thorough accuracy of Dr Martin Barry's work, of which he had read a great deal lately. To Dr Barry belongs the credit of having shown that the germinal vesicle appeared first in the stroma, and that the Graafian follicle was subsequently formed around it.

II. *Dr Underhill* read a NOTE OF A CASE IN WHICH THE FŒTAL HEART WAS HEARD AT AN EARLY PERIOD OF PREGNANCY:—

On 6th September 1874, I was asked by my brother, a medical student, to see a woman, Mrs M'Gair, æt. 30, multipara, who was ill with fever, in the High Street. I found her a very spare and thin person, suffering from a moderately severe attack of typhus fever. She said she was several months pregnant—about three or four, but could not tell exactly. The abdominal wall was thin and lax, as she had had several children before. On palpation, I could not make out distinctly the shape of the enlarged uterus, but percussion revealed dulness extending for about two inches above the pubes. On placing the stethoscope on the dull part, and to the right of the middle line, I distinctly heard the double pulsation of the fœtal heart, and, taking out my watch, counted it; it was beating at the rate of between 160 and 170 pulsations per minute, while the mother's pulse, which I also counted, was only about 120. My brother afterwards listened and heard the heart beats and also counted the number of pulsations, making them about the same as I did. I recommended the removal of the patient to the Royal Infirmary, where she was taken two days later, and was dismissed convalescent in a fortnight. She was delivered of a very large and healthy child on the night of 8th March 1875—that is to say, six calendar months and two days, or 183 days, after I heard the fœtal heart, which was, taking 278 days as the average duration of pregnancy, only 96 days (13 weeks and 5 days) after the supposed successful coitus. It is right to add that the woman expected to be confined some time before the labour came off, and the very large size of the child makes it possible that pregnancy was protracted somewhat longer than usual, and that consequently an earlier date should be fixed for its commencement. But still the fact remains that the fœtal heart was heard in this case six calendar months before parturition, that is, about the beginning of the fourth calendar month of pregnancy.

I have thought this case worthy of a short note, as being one of the earliest dates on record of hearing the fœtal heart, and because it shows that in a favourable case the diagnosis of pregnancy may be made certain in this way much earlier than is usually supposed. We were fortunate in this case on hitting upon the spot where the heart was nearest the surface at once, but in other cases in which I have examined for it in the middle months of pregnancy, I have generally found it to require considerable and sometimes prolonged search before it could be hit on, and the extreme mobility of the fœtus at this early period seldom allows of its being heard for many minutes consecutively in the same spot.

The period at which the fœtal heart first becomes audible is very differently estimated by different authors.

M. Depaul,[1] who investigated the subject with great care, states that in 73 cases in which he examined for the fœtal heartbeat before the 20th week, 11 were in the third month, and in none of them was it audible; 22 were in the fourth month, and in two of them only, each of whom had reached three and a half months and dated from single coitus, was it perceptible; in the remainder, who were more than four calendar months pregnant, not to hear the fœtal heart was the exception. He further relates that, in endeavouring to show that the uterine souffle is audible at a very early period of pregnancy, he came upon two cases which proved to him that the heart can be heard at the end of the third month. These cases may be summarized thus:—

---

[1] Traité d'Auscultation Obstétricale. Paris, 1847. Pp. 243 et seq.

No. 1. A. B., aged 18, menstruated 18th July, married 28th July, fœtal heart heard at the end of October (day not given), 148 pulsations per minute; auscultation was repeated with the same result a week later. Delivery at the end of April. The fœtal heart being thus heard at the end of the third month.

No. 2. C. J., mother of several children, menstruated 10–15th April, cohabited with her husband 17–20th of the same month. Her husband then left home for a few days, and before his return she took typhoid fever. Fœtal heart heard on 1st of August (140 per minute). Delivery of a fully developed mature child on 19th January of following year. The time in this case being the 15th week.

With regard to the first of these cases, Depaul says that it proves that the heart can be heard "déjà à la fin de la onzième semaine," but, as stated, it is clear that at least three calendar months must have elapsed from the date of possible impregnation. His statement therefore that he has heard it at the end of the eleventh week, which is copied into most of the text-books, is certainly not borne out by the case as he relates it.

Naegelé, in his treatise on Obstetric Auscultation, tells us that the 18th week was the earliest period at which he heard it, and that only in primiparæ; it was made out in 30 out of 50 cases before the middle of pregnancy, and in almost all these examined after the 20th week.

Evory Kennedy[1] says that it may in a few cases be detected before the end of the fourth month, but as a rule we must not look for it before the period of quickening.

Cogeaux makes it during the fourth or fifth month, more frequently the latter, but states that in one case he "thought he heard" it a little before the fourth month, but could not re-examine the woman until six weeks after.

Leishman's words on the subject are, "It is certain that, as a general rule, it is not until the fifth month that the pulsations can be detected; but many trustworthy authors declare that they have heard them in the course of the fourth month, and even as early in some few cases as the eleventh week" (alluding to Depaul's case mentioned above, which he looks upon with incredulity). According to him they may be heard occasionally in the first week of the fourth month, but the 18th week is the average period.

The question of the earliest period at which these sounds become audible is of importance from two points of view: first, from the bearing it has upon practice in relation to the diagnosis of pregnancy in the earlier months; and, secondly, it is of physiological interest as showing at how early a period of its development a fœtus possesses a heart capable of producing sounds audible through the abdominal wall of the mother.

---

[1] Observations of Obstetric Auscultation, p. 101. Dublin, 1833.

Thus, in the fourth lunar month, *i. e.*, from the end of the 12th to the end of the 16th week (and you will remember that in the case before us the fœtus was supposed to be in the 14th week), the fœtus, according to Schroeder, is from 10 to 17 centimetres (4–6½ inches) in length, and weighs as much as 1860 grains, or about 3¾ ounces; and it is during this month that the external genitals first begin to assume the sexual distinction; similarly, Caspar says, that at the end of the fourth lunar month the embryo weighs 2½–3 ounces, and is from 5 to 6 inches long, the sex is just recognisable, etc. Now, it seems to me to be a point worthy of attention, if it can be proved that a being in other respects so small and imperfect, yet has a heart of such considerable power, for the size of the organ must be exceedingly small.

It is true that, as is well known, the heart of the fœtus during the earlier months is very much larger relatively than it is later in intrauterine life, and occupies at one time nearly the whole thoracic cavity, lying nearly in a vertical direction; at the 2d month the proportion of weight of the heart to that of the whole body is stated by Meckel (I quote from Quain's Anatomy) to be as 1 to 50, the ratio being gradually reduced to 1 to 120 at birth, and 1 to 160 in the adult on an average. At this period of development, moreover, the auricles are much larger than the ventricles, and the foramen ovale is still a widely open orifice—points which bear upon the cause of the first sound of the heart.

This communication was merely intended for a note, and I only wish to point out that this subject will bear and repay additional investigation.

Dr Ritchie had examined a case in which he heard the fœtal heart before the 16th week of pregnancy; the female had last menstruated 12 weeks before he saw her, but from the date of delivery at full time he considered the pregnancy to be of more than 12 but not exceeding 16 weeks, when he was first consulted.

Part Fourth.

PERISCOPE.

MAURIAC ON SYNOVITIS OF TENDONS SYMPTOMATIC OF SYPHILIS AND GONORRHŒA.—The following are two cases of *tendinous synovitis*, whose chief interest lies in the general and constitutional conditions which give rise to them:—

I.—In the first case, the syphilitic origin of the tendinous synovitis is beyond dispute.

The patient, aged 30, of a strong constitution, had never suffered from any form of venereal disease until he contracted an infecting chancre early in June 1872.

He consulted me forty days after the appearance of the chancre, when the following condition was noted:—A confluent papular roseola on the trunk, limbs, and even the hands, crusts amongst the hair, mucous patches on the lips, with cervical and inguinal adenopathies.

The chancre, situated at the angle of the scrotum with the penis, was ulcerating, and had not yet cicatrized. The outbreak of consecutive symptoms had been early and well marked; the general health remained excellent.

On the 8th August 1872, the forty-second day of the chancre, the patient, without any accidental cause, was suddenly seized with a pain on the back of the left hand, accompanied with a feeling of stiffness and great difficulty in moving the fingers. At the same time diffuse swelling came on, without redness of the skin. At the end of two days the affection of the left hand had become much more intense. On the dorsal surface, one centimètre below the wrist, existed a tumour about the size of a nut, but slightly flattened, not distinctly circumscribed, soft and fluctuating, reddish, shining, and excessively painful on pressure. The fingers were semi-flexed, and could not perform any movement of flexion or extension. It was impossible to use the hand, on account of radiating pains up the entire forearm.

This tumour, which evidently occupied the synovial sheath of the extensor tendons, had increased hour by hour, and by the acuteness of the symptoms had reacted on the whole system, for the tongue was foul, and there was a considerable amount of feverish disturbance. Therefore, the patient determined to enter the hospital on the following day, the 10th August.

The tumefaction on the back of the hand had much increased; it had extended from the wrist to the vicinity of the metacarpo-phalangeal joints. All the fingers were flexed and immovable, with the exception of the thumb, whose extensor had remained unaffected. The pain on pressure was so great that it was impossible by palpation to find out the consistence of the tumour. The skin over it was hot, red, and tender. No similar lesion existed in the other tendinous sheaths. The fever persisted for about three days.

Mercurial treatment was immediately adopted, with soothing and emollient applications to the affected part.

During the following days the pain progressively diminished, but the tumefaction extended as far as some centimètres above the wrist. It consisted of diffuse thickening, without fluctuation.

On the 18th August (tenth day of the synovitis), the inflammation had greatly subsided, and the fingers began to be moved without pain. Above the wrist the tumour on the back of the hand had become circumscribed and fluctuating. Below the wrist, the intumescence still remained diffuse and tender on pressure.

From this time improvement was very slow. On 30th August (sixty-fourth day of the chancre, twenty-second of the synovitis), the fluctuating tumour on the back of the hand had scarcely diminished, while the swelling on the posterior surface of the forearm above the wrist was, on the contrary, on the way to resolution.

The finger movements were executed more freely; complete flexion and extension was still impossible. The thumb and little finger had always moved with greater ease than the other fingers, more especially than the middle. Spontaneous pain, and pain on pressure, was much less acute.

From this time it was evident that the synovial tumour on the back of the hand, so distinctly fluctuating, would not burst. For some days the patient had suffered from mercurial stomatitis, which necessitated the discontinuance of the pills, and the frictions with mercurial ointment, which had been daily applied to the back of the hand. Under the specific treatment, carried to salivation, the general health became excellent, and the patient, who had grown thin, recovered his ordinary condition.

He left the hospital, and did not return until 14th November (four months and a half after the appearance of the chancre). Although the general health continued quite good, a fresh syphilitic outbreak came on in October. The lips, anus, prepuce, and scrotum were covered with confluent mucous patches. The fluctuating tumour on the back of the hand had neither suppurated nor opened, and had disappeared by degrees. Still, however, a kind of thickening could be felt at the central part of the dorsal surface of the wrist, which seemed to have matted the tendons together. The movement of flexing the hand on the forearm was very limited when the hand was open, and impossible when it was closed. The middle and ring fingers were much embarrassed in their movements, and could only be moved simultaneously, which indicated that their tendons were glued together.

It is important to add, that repeated efforts were made to discover any trace of rheumatism in this patient's antecedents, but without success. Further, he never suffered from any affection of the urethra. I therefore feel authorized in stating that this tendinous synovitis was incontestably of syphilitic origin.

II.—In relation to etiology, the following case gives rise to more doubt, or at least to discussion:—

The patient, aged 20, vigorous, of a good constitution and fair complexion, never had any manifestation of rheumatism until he contracted, for the first time, a venereal malady on 10th December 1874. After an incubation of fifteen days or three weeks, he observed a small white nodule, not suppurating, at the side of the frænum, between the glans and prepuce. This nodule gradually increased in size, setting up so much tumefaction as in a few days to make it impossible to uncover the glans. At this time there existed a balano-posthitis, with phymosis, which was treated with nitrate of silver injections. The prepuce was red and œdematous, but there was no abnormal sensibility inside the canal, and the patient felt no pain either when passing water or during erections. The glands in both groins enlarged; they remained quite indolent.

On 29th December—that is, nineteen days after the commencement of the symptoms above described—the patient began to suffer pains and twinges in the left calf. On the following day a pain, sufficiently violent to prevent walking, occurred in the knee of the same side; its seat was on a level with the tendon of the semimembranosus muscle. Nearly at the same time there formed at this spot—that is to say, at the upper part of the internal aspect of the tibia—a diffuse tumefaction, without heat or redness of the skin, but very sensitive to pressure. Although there was no fever, the patient was obliged to remain two days in bed, as he could not walk. Besides, he was forced to keep the leg flexed on the thigh, as, when it was extended intolerable pains shot through the whole limb.

On 1st January (twenty-first day of the genital affection) the pain had diminished, and the patient could get up and walk; on the 2d, 3d, and 4th, the knee grew almost painless. A considerable quantity of muco-pus was discharged from the prepuce, but micturition and erections caused no pain.

Such was the state of matters until 5th January, the twenty-sixth day of the genital affection, when a pain came on quite suddenly, which occupied the outside of the dorsal aspect of the right wrist; soon after, a small red line appeared, leading over the back of the hand.

The following day the entire back of the hand was red and painful, and had become the seat of a large diffuse thickening. The hand was slightly flexed on the forearm, and the fingers remained extended and semi-flexed on the palm of the hand.

7th January (twenty-eighth day of the genital affection), I saw the patient for the first time, and observed the following condition:—

The dorsal aspect of the right hand was the seat of a diffuse swelling, bounded above by the wrist, below by the metacarpo-phalangeal articulations, better circumscribed and more developed on the outer than the inner side, and of a light rose-violet tint. No fluctuation was felt. The wrist was not swollen, but where the tendons pass over it pressure caused sharp pain.

A little indolent swelling, with redness, still remained in the region of the left semi-membranosus tendon. All the articulations were unaffected. The patient had no fever, and his general health was very good.

Besides the pain in the back of the hand, there was also a tender spot at the back and outer part of the shoulder. The seat of the pain was very circumscribed, and situated at the external end of the spine of the scapula. There was indistinctly felt on the skin, which showed no change of colour, a very slight protuberance, extremely painful on pressure, immobile, and apparently situated in the periosteum.

As to the genital affection, it consisted of a phymosis with balano-posthitis. The prepuce was hard and swollen, it discharged pus, but the patient complained of no pain, either in urinating or during erection. The canal was insensible to pressure. It was impossible to see the meatus, nor consequently to establish whether the discharge proceeded from the urethra or only from the glando-preputial cavity. The inguinal glands were enlarged and slightly hard.

I diagnosed balano-posthitis with phymosis, symptomatic of infecting chancre of the frænum. I remained in doubt regarding gonorrhœa, and prescribed injections of nitrate of silver between the glans and the prepuce.

Towards 12th January the patient felt, for the first time, sharp pain in urinating. The phymosis was less pronounced, and the prepuce could now be retracted so as to expose the meatus, and I saw that a gonorrhœa existed, with a very abundant flow of muco-pus.

Till the 15th the symptoms of tendinous synovitis of the right hand and knee went on diminishing little by little. At this date, which was the thirty-eighth day of the genital affection, the nineteenth of the synovitis of the semi-membranosus tendon, and the twelfth of the tendinous synovitis of the sheath of the extensors, I observed the following condition:—

There still existed slight tumefaction of the back of the hand, without redness or sharp pain, either spontaneously or on pressure; the fingers had nearly recovered their freedom of movement, and the patient could write.

It had not gone so well with the left knee. There, a diffused but well-marked tumefaction had come on within the last three days, measuring 8 or 10 centimètres in all diameters, slightly inflamed, not fluctuating, and excessively tender on pressure. The leg was semi-flexed, extension being impossible. The pain at the spine of the scapula had diminished, and the small elevation was imperceptible. No fever; general condition was good. An opiate was ordered for the gonorrhœa.

Two days afterwards the pain at the semi-membranosus tendon, as well as the tumefaction, had diminished; but the tenderness on pressure always remained so severe as to prevent a thorough examination; thickening, but no fluctuation, could be made out. The pain had lessened; the leg could be a little extended, but not sufficiently flexed for walking.

The improvement in the hand continued; one felt on the back, at the outer side, a hardness composed of non-absorbed plastic material. The ring and little fingers were less mobile than the others; the thumb was unaffected.

On 23d January (forty-fifth day of the genital affection, twenty-sixth of the synovitis of the semi-membranosus tendon, nineteenth of the synovitis of the extensors of the fingers), the urethral discharge was nearly cured, as well as the phymosis and balano-posthitis. Specific induration was felt near the frænum, and there was a small indurated cicatrix at the side of the meatus.

Although the tumefaction at the knee had diminished, the patient suffered sharp pains, which were propagated all through the lower extremity.

The little and ring fingers remained rather stiff in their movements, and there was thickening of their extensor tendons.

Neither on the skin nor mucous membrane could any trace of constitutional syphilis be discovered.

The pains in the leg abated. The gonorrhœa had stopped, and, the patient finding himself much better, quitted the hospital and left for the country.

I have not again seen this patient since he left hospital, and therefore cannot at present complete his case. But it appears to me permissible, just now, to interpret some of the interesting peculiarities which it presents, and to determine in what respects it resembles, and in what it differs from, the first case.

(*To be continued.*)

In the June number of the *Atlantic Medical and Surgical Journal*, Henry Fraser Campbell, A.M., M.D., Professor of Operative Surgery and Gynæcology, Georgia University, publishes a *résumé* of a report on "Position, Pneumatic Pressure, and Mechanical Appliance in Uterine Displacements," in which, by placing the patient on the knees, the thighs being perpendicular to, and the chest touching, the horizontal plane, relaxing the abdominal muscles, and admitting air to the vagina, he says, the traction of the viscera out of the pelvis replaces the displaced uterus far more certainly than posture alone. He recommends this to be done by the patient herself every night when she goes to bed in those cases where no instrument is worn, and also by the surgeon or the patient before introducing a pessary. The air is admitted by a short tube, slightly bent at one extremity; this he calls the "uterine repositor." The patient need not be exposed. The proposition seems a good one, and is, at any rate, worth a trial, for replacement is felt to be more perfect on introducing the finger before and after the admission of air into the vagina, and comparing the results of posture alone, and posture with pneumatic pressure. The physician needs no "uterine repositor," for the air rushes in on separating the labia minora by means of the fingers alone.

Dr Campbell says there is no record of this method of treatment that he is aware of; but in the first chapter of Dr Marion Sims's book on Uterine Surgery (which chapter Dr Campbell quotes), Dr Sims relates a case of uterine dislocation reduced by this very method accidentally, and which led him to invent his speculum. Dr Sims, however, does not propose this as a method of treatment.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Action of Aconitina on the Heart.—Lewin, operating on frogs, finds that aconitina, in doses of ·0025 to ·0015 gramme, lowers the frequency of the cardiac beats; and this occurs most rapidly when injected into the veins, more slowly when subcutaneously injected, and most slowly when injected into the stomach. The duration of the action varies from one to two hours. It is succeeded by a period of increased frequency of the heart's beats, which is soon followed by irregularity, and finally ends in arrest in diastole. At the close of almost all the experiments an arhythmia of the cardiac actions occurred, due to the rapid pulsations of the auricles, or to their beating alone. The peripheral nerves, when the poison was administered in moderate doses, exhibited considerable diminution of excitability, and with larger doses paralysis occurred. The heart after death did not always respond to electrical excitation. In experiments on warm-blooded animals, he found that the first symptom observable was marked dyspnœa, and this augmented till death occurred; but by the application of artificial respiration for nine hours and a half continuously, he was able to save the life of a rabbit to which a fatal dose had been given. The dyspnœa is due to the direct action of the poison on the respiratory centre in the medulla oblongata. In regard to the heart, he obtained results of a double nature, partly conformable to those produced by digitalis (corresponding, therefore, to primary irritation and subsequent paralysis of the vagus), partly consisting in a diminution of the force of the heart, and a rapid sinking of the frequency of the pulse. The cause of this was the action of the poison on the ganglionic centres in the heart, at one time with integrity of the vagi, and then with paralysis of the vagi.—*Lancet*, 17th July.

Aconite and Opium Poisoning.—In a paper in the *New York Medical Journal*, vol. xxi. p. 361, Dr Ellis Blake calls attention to the fact that patients, after having rallied to a great extent from the primary effects of either opium or aconite, may succumb to a secondary coma of uræmic origin, and due to the suppression of the urinary secretion by the poison.

The Anatomical and Surgical Applications of Chloral.—In the *American Journal of Medical Science* for July is an interesting paper by Dr W. W. Keen on the Anatomical, Pathological, and Surgical uses of Chloral. For anatomical purposes he uses a solution of about a quarter of a pound to six or eight pints of water. He claims as advantages the cheapness of the article, the beautiful condition in which it preserves the tissues for dissection, the almost perfect absence of odour, and the fact that it does not corrode instruments or destroy clothing. For the preservation of pathological specimens, urine, sputa, etc., he speaks highly of chloral, and he indicates the cases in which its presence would interfere with the chemical examination of the urine. He suggests its employment as a deodorant, and for injection into the bladder in cases of retention or inflammation, etc., when there is any decomposition of the urine. From 5 to 15 grains, dissolved in an ounce of water, he recommends as a disinfectant in offensive ulcers, abscesses, cancer of the womb, ozæna, etc.

ACTION OF CHLORAL.—In *Stricker's Jahrbucher*, part 3, 1874, Dr Prokop Rokitansky writes concerning the action of chloral. He finds that it acts as a direct cardiac poison when concentrated, stopping the pulsation of the heart by paralyzing the ganglionic centres. It impairs the irritability of the respiratory centres, and also of the motor centres for voluntary muscles. Lastly, it reduces the irritability of the vaso-motor centres.

EFFECT OF CHLORAL ON THE URINE.—MM. Musculus and De Meriné divide substances which, when introduced into the system, are rejected, into three groups:—1. Those which pass unaltered, and are unchanged in the urine, as creatin. 2. Those which are decomposed, and the products of which are found in the blood, saliva, and urine, etc., as leucin and glycocoll, which yield urea. 3. Those which combine chemically with some product of the organism, and so pass into the urine, as benzoic acid, which combines with glycocoll, and appears in the urine as hippuric acid. Feltz and Ritter have recently discovered in the urine of dogs poisoned by chloral, sugar, chloral, and an organic substance which is precipitated by basic acetate of lead, and which they propose to name urochloralic acid. This substance forms stellar groups of crystals, and contains C 31·60, H 4·36, Cl 27·70. At the boiling point it reduces alkaline solutions of copper and bismuth and salts of silver; it decolorizes sulphate of indigo, and turns the plane of polarization to the left.—*Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, 12th April 1875.

EFFECT OF BICARBONATE OF SODA ON CHLORAL.—Professor König states that the narcotic power of chloral is increased if bicarbonate of soda be given immediately previously. He believes that one part by weight of chloral hydrate may be replaced with equal effect by one part of bicarbonate of soda and 0·4 part of chloral.—*Pharm. Zeitung*, 22d May.

ORE finds that two drops of a ten per cent. solution of carbonate of soda added to fifteen grains of chloral, dissolved in a drachm of water, will render the solution alkaline. As this solution hinders the coagulation of the blood, it can be injected into the veins without any risk of producing embolism. In a former report we drew attention to M. Oré's advocacy of intravenous injection of chloral.—*Bull. Gen. de Thérapeutique*, April.

CHLORAL AS AN ANÆSTHETIC IN LABOUR.—In the *Annales de Gynecologie* for May, Dr H. Chouppe has collected a large number of cases, from which he draws several important conclusions. Chloral does not diminish the contractility of uterine muscular fibres, and the suppression of pain is not due to diminution either in the intensity or frequency of the uterine contractions. When inertia, as a cause of a prolonged labour, is threatened, chloral generally restores energy to the uterus. Neither infant nor mother are injured by the anæsthesia, and no evil after-effects have been observed. Chloral is especially indicated in tedious labour, in primiparæ, and in the case of nervous and hysterical patients. It should generally be given when the os is fully dilated, and the expulsion pains commence; but in exceptional cases, when the patient suffers greatly, it may be given during dilatation. The dose varies from a drachm to a drachm and a half, in two doses, at an interval of half an hour, or in smaller doses at shorter intervals, if we do not desire too rapid an effect. If there is a tendency to vomiting, it may be given by the rectum.

In the *Gazetta Medica Italiana-Lombardia*, 6th February, Dr Chiarleoni also speaks highly of chloral as a means of diminishing suffering, and encouraging vigorous uterine contraction. He affirms that in cases the subjects of albuminuria chloral is indicated, especially in relation to the prevention of convulsions. In some cases it was noticed that when the patient awakened out of the sleep induced by chloral, there was an inclination to talkativeness, or even a state approaching to alcoholic intoxication. The following formula was usually employed, freshly prepared:—Chloral, 6 grammes; syrup, 60; water, 100. Of this a spoonful was given every ten minutes until the effect was produced. When it was considered necessary to give a larger quantity at once, 4 grammes of chloral were dissolved in 60 of water, and administered as an enema, in two portions, with an interval of an hour.

CHLORAL AND BROMIDE OF POTASSIUM IN ENEMA IN DISEASES OF WOMEN.—Dr G. de G. Griffith advises the administration of chloral and bromide of potassium in enema, as nausea and the burning or disagreeable taste is thus obviated, and the gastric nerves are not affected. An irritating sensation in the rectum may be avoided by beating up the drug with one or two eggs, and adding a little warm milk. He records a case of violent puerperal mania successfully treated with nutrient injections, to which he added a drachm of bromide of potassium and half a drachm of chloral. In a case of gall-stones occurring in the person of a lady whose stomach was so irritable that nothing could be retained, and with whom all other remedies failed, injections of chloral in half-drachm doses were successful. In cases of menstrual pain and sickness, in uterine and ovarian irritation, and in irritable conditions of the rectum, enemata of chloral have been found most efficacious.—*British Medical Journal*, 8th May.

CHLORAL IN NOCTURNAL EMESIS.—In *L'Imparçiale*, 17th March, Dr Ademolo relates four cases which were completely cured by chloral hydrate. It may be given at first in doses of 7 or 8 grains at night, gradually increasing the dose up to 12 grains.

CHLORAL IN TRAUMATIC TETANUS.—In his Thèse de Paris, December 1874, Dr Gontier records twelve cases of tetanus treated by chloral. He concludes that chloral is preferable to other drugs in the treatment of chronic or subacute tetanus, but that in acute tetanus it is either inefficacious or merely palliative. It may be associated with tonics, diffusible stimulants, and diaphoretics.

CHLORAL IN HOOPING-COUGH. — Dr Greslon reports a very severe case which succumbed to chloral, in doses of from 15 to 30 grains every night, after all the remedies usually tried had failed. The action of the drug was very rapid, fifteen days only having elapsed between the first administration of the drug and the cessation of the cough.—*La France Médicale*, 3d April.

POISONING BY CHLORAL.—In the *Centralblatt f. d. Med. Wissenschaften*, 3d April, a case is recorded of a man having taken about 370 grains of chloral. He was successfully treated by two injections of strychnia; the first of 0·003 gramme, the second of 0·002 gramme. The injections of strychnia were followed by tetanic spasms. No gastritis followed, probably owing to the fact that the chloral had been taken on a full stomach.

PROPERTIES OF GLYCERINE.—Dr Godeffroy finds that when pure glycerine is heated to 302° Fahr. it takes fire, and burns with a steady, blue, non-luminous flame, without diffusing any odour or leaving a residue. The sp. gr. of this glycerine was 1·2609. This property enables glycerine of lower sp. gr. to be burned by means of a lamp-wick.—*Medical Press*, 7th July.

GLYCERINE AS A THERAPEUTIC AGENT.—Dr C. H. Lidd states that children raised by hand can be kept comparatively free from many of the ills to which they are subject, if from 4 to 6 drachms daily of glycerine be substituted for sugar. When the bowels are irritable, glycerine should always be substituted for sugar. The exosmotic properties of glycerine surpass those of any agent at our command, and it has the property of withdrawing the watery elements from any tissue to which it is continuously applied. Marion Sims showed that a ball of lint saturated with glycerine will arrest the secretion of a suppurating surface; and Furst and Eberhurd state that they have successfully used a glycerine plug in fluor albus.—*Detroit Review*, May.

GLYCERINE IN DIABETES.—At a meeting of the Académie des Sciences of Paris, 17th May, M. Garnier communicated a note on the efficacy in diabetes of glycerine in doses of 20 to 50 grammes. This treatment was recommended by Herr Schulz of Dorpat.

IODINE IN REMITTENT AND INTERMITTENT FEVER.—Dr Monro (*British Medical Journal*, 7th November 1874) corroborates Professor Willebrand's experience as to the efficacy of iodine in the treatment of remittent and intermittent fever. He gives 10 to 15 minims of the tincture in a wineglassful of water three or four times daily. He believes iodine to be more permanent in its effects than quinine.

INFLUENCE OF QUININE ON THE INTRACRANIAL CIRCULATION.—In a paper in the *Psychological and Medico-Legal Journal*, October 1874, Dr Hammond calls attention to this subject, and verifies the conclusion of Melier and Magendie that large doses of quinine cause cerebral congestion. Gubler, on the other hand, is of opinion that quinine produces anæmia of the brain. Dr Hammond's careful researches would seem to settle the question. He points to the influence of quinine in arresting headache in anæmia as a therapeutical confirmation of his views.

INFLUENCE OF QUININE IN ULCERATION.—In the 5th volume of *St Thomas's Hospital Reports*, Mr Croft speaks to the value of quinine in serpiginous and phagedenic ulceration. In one case, which had resisted every treatment, quinine in 8-grain doses, combined with scruple doses of iodide of potassium, induced a rapid cure. The quinine caused a singing in the ears about a week after the patient had commenced to take it, but the drug was not discontinued on this account. Details are given of two remarkable cases of phagedenic ulceration, one of which was syphilitic and the other non-syphilitic, in which quinine was of great service.

QUININE AS A UTERINE EXCITANT.—Dr P. Casanova records a case in which sulphate of quinine had neither any hæmostatic properties nor any stimulating effect upon the uterus, metrorrhagia having come on after the patient had taken nearly 17 grains. Another case recorded by Dr Casanova would seem to us as tending to prove the truth of Monteverdi's theory of the action of quinine as a hæmostatic and uterine excitant, but the article in the *Medical Record*, 28th April, referring to Casanova's observations, characterized this case as "tending to prove the fallacy of the theory."

In a paper recently read by Dr A. H. Smith before the College of Physicians of Philadelphia, he records his experience of sulphate of quinine as a promoter of normal labour in forty-three cases. He holds that it increases the normal uterine contractions, causing the pains to become more frequent and intense, increasing the expulsive power, and causing the circular fibres of the os to yield more promptly. The contractions maintain their proper intermittent character. Quinine promotes permanent tonic contraction of the uterus after expulsion of the placenta, and of the forty-two cases recorded, there was not one of flooding. It diminishes the lochial discharge to a normal standard; its use is followed by less after-pains than usual; it reduces the frequency of the mother's pulse, and relieves the nervous demoralization so often seen in the first stage of labour. Given during parturition it never disturbs the brain or causes its usual unpleasant effects. Although the dose was uniformly 15 grains, in only one case was there the slightest sensation of cinchonism, and in this case it was momentary. Dr Smith believes quinine to be inert as to any effect on the womb in the quiescent state, and that to its property as a general stimulant and promoter of vital energy and functional activity, is due its influence on the uterus in normal parturition.—*American Journal of Medical Science*, July.

Dr Stafford of Boston also records, in the *New York Medical Journal*, February, a series of cases illustrating the effect of quinine in accelerating parturition. His experience of the drug is that it does not produce the spasmodic uterine contraction which ergot causes; that there is an unusual freedom from flooding; that the placenta is generally removed without difficulty; and that the uterus contracts firmly.

QUININE IN ERYSIPELAS.—Dr Le Mournier, in the *New Orleans Medical and Surgical Journal*, Vol. ii. No. 3, gives cases in which he used quinine very successfully. He gives it in doses of 2 grains every hour or two, and gives also the best diet. He agrees with Bequet that if the salt is given in small doses the cerebro-spinal functions are at first excited, whilst, if the dose be kept up and increased, a sedative action results. When given in small doses, and at long intervals, it gives energy to the pulsation of the heart, and increases the force and frequency of the pulse. On the other hand, when given in large doses, and at short intervals, it has a sedative effect on the cardio-vascular system, and depresses calorification.

TREATMENT OF TYPHOID FEVER BY QUININE.—M. Corral, in the *Genio Medico Quirurgico*, 15th March, records several cases of typhoid fever successfully treated by quinine. He has frequently given quinine in cases of nervous and adynamic forms of typhoid fever. He believes that this drug modifies the temperature and febrile state, and gives the disease the intermittent type.

SALICYLATE AND CARBOLATE OF QUININE.—Jobst (*Neues Repertorium für Pharmacie*, xxiv. 193) states that an aqueous solution of hydrochlorate of quinine gives, with salicylate of ammonia, a precipitate of salicylate of quinine, which can be crystallized from alcohol in fine prisms in concentric groups. He has also succeeded in preparing carbolate of quinine, both from water and alcohol, in slender acicular crystals. If those salts have similar therapeutic properties, the preference must be given to the salicylate, on account of its greater degree of solubility.

Part Fifth.

MEDICAL NEWS.

THE INTERNATIONAL CONGRESS OF OPHTHALMOLOGY will meet in New York City on Tuesday, 12th September 1876, at twelve o'clock noon. The following extracts from the rules of the Congress will give an idea of the general character of the Society, and of the terms of membership:—

"1. The object of the International Periodic Congress of Ophthalmology is to promote ophthalmological science, and to serve as a centre to those who cultivate it. It will entertain no discussion foreign to this object. 2. The number of members is unlimited. 3. Every member must be either a doctor of medicine, or of surgery, or of science, or possess some other equivalent degree, or be distinguished for his scientific knowledge. 4. Candidates for admission into the Society shall be admitted on presentation of their diploma or of their scientific title, unless ten members demand a ballot. 5. The sessions of the Society shall take place every fourth year, and be limited to ten days. 11. The Society gives no diploma. Before the opening of each session a card available for admission to all the meetings, and signed by the President and Secretary, shall be given to each member on payment of his subscription (fixed at 2 dols.), and upon signature of his name on the register of those attending the meeting." The committee are making all efforts to secure a large attendance, and one that will leave its mark upon the progress of ophthalmology. The co-operation of the profession of Great Britain in securing these objects is earnestly desired by the undersigned, the Provisional Committee appointed in London in 1872.

CORNELIUS R. AGNEW, M.D.
HENRY D. NOYES, M.D.
DANIEL B. ST JOHN ROOSA, M.D.

LIST OF GENTLEMEN who competed successfully for appointments in Her Majesty's British Medical Service at the Examination held at the University of London on the 9th of August 1875.

Order of Merit.	Names.	Marks.
1.	Hewett, F. C. C.,	2367
2.	Taaffe, R.,	2132
3.	Le Grand, W. J.,	2050
4.	Briggs, W. H.,	1855
5.	Fenn, E. H.,	1825
6.	Kellett, L. H.,	1825
7.	Thompson, T. W.,	1785
8.	Findlay, J.,	1780
9.	Daubeny, C. A.,	1775
10.	Ievers, P. G.,	1775
11.	Burges, W. A.,	1720
12.	Fleming, H. B.,	1720
13.	James, W. M.,	1618
14.	Hayes, P. A.,	1540
15.	Kirkwood, K. D. L.,	1450

OBITUARY.

Died, at Edinburgh, on the 19th July last, ROBERT PRIDIE, M.D., descended from a Huguenot family who settled in England, whose name was originally Prideaux. He was born in Edinburgh, and was apprenticed to the late Robert Liston for five years, being his first apprentice after he became a Fellow of the College of Surgeons, the indenture being dated 30th July 1821. He became a Licentiate of the Edinburgh College of Surgeons in 1826, and graduated at Edinburgh as M.D. in 1831. After fourteen years' practice at Stockton-on-Tees, he removed to London, where his health gave way. Obtaining the appointment of Surgeon-Superintendent to Her Majesty's Emigration Commissioners, in that capacity he visited every quarter of the world, and circumnavigated the globe two or three times. Of late years he relinquished practice, and devoted himself to mathematics, of which he had been a student during his life, as a recreation.

CORRESPONDENCE.

SIR JOHN ROSE CORMACK ON THE LATE PROFESSOR JOHN REID, M.D., THE "SOCIETY FOR THE ABOLITION OF VIVISECTION," AND THE BIOGRAPHY BY DR GEORGE WILSON.

PARIS, 7 RUE D'AGUESSEAU,
August 1875.

SIR,—During the late meeting at Edinburgh of the British Medical Association, I was several times asked by professional friends, who knew my close and intimate friendship with the late Professor John Reid, and who also remembered that, in some of my published inquiries into the "effects of the introduction of air into the organs of circulation," and the physiological action of creasote and hydrocyanic acid, he is stated to have assisted me in the experiments on animals; Whether I believed in the allegation now being circulated industriously, and at considerable expense, by the "Society for the Abolition of Vivisection," to the effect that he regarded the agonizing malady under which he was succumbing as a judgment of God upon him for the sufferings he had inflicted on animals in his experimental elucidation of physiological questions? My attention was in particular directed to the following notice, which lately appeared in the *Scotsman* and other newspapers:—

> "VIVISECTION.—In respect to an advertisement in the *Scotsman* of 12th July, signed *Andrew Taylor*, the public is requested to refer to Dr George Wilson's Life of Dr John Reid, Professor of Anatomy, Sutherland & Knox, 2d edition, 1852, pp. 179, where these words occur more than once as used by Dr Reid during his last illness, in reference to his own present agony and past life—'*This is a judgment on me for the sufferings which I inflicted on animals.*'
>
> "R. JESSE, *Hon. Sec. for the*
> "*Society for the Abolition of Vivisection.*"

The passage referred to in Dr George Wilson's biography is as follows:—

"Twice Dr Duncan and Mr Goodsir proceeded to St Andrews with the view of performing an operation should it seem advisable; but both times they came away, thinking it better not to interfere. On one of these occasions, he referred pointedly to the seat of his sufferings being the same nerves on which he had made so many experiments, and added, '*This is a judgment on me for the sufferings which I inflicted on animals.*' To this he recurred at a later period, referring to it, however, not as an avenging retributive judgment, but as a kind and merciful one." . . . "I cannot give," adds the biographer in a footnote, "the exact words (the term *judgment* excepted), which have escaped my memory, as well as Professor Goodsir's, from whom I had the statement at the time it was made; but the members of Dr Reid's family, who heard him more than once make a similar statement, confirm their general accuracy."

Were it *ad rem,* I might show most probably that Dr Duncan and Mr Goodsir never "proceeded to St Andrews with a view of performing an operation." The facts are jumbled in respect of this and other matters by the amiable biographer. Be that as it may, I do not believe that my dear departed friend ever said in seriousness, or ever thought, that the pain he experienced from cancerous disease of tongue and pharynx was a judgment for the sufferings he had inflicted on animals. John Reid was, I firmly believe, a sincere Christian, but he was also a man of robust common sense. I can hardly, therefore, suppose that an expression so morbid, and so absurd, as that which is quoted by Mr Jesse, ever escaped from his lips, even when excruciating pain and benumbing morphia were contending for the mastery of his senses.

Dr John Reid and his wife were my guests at Putney in the autumn of 1848 for four days, during which period he corrected the proof of the last sheet of the volume which contains his collected works. He had then had the greater part of his tongue removed—the first operation—and was for the time pretty well. I remember the glee with which he handed me the parcel of already printed sheets, remarking that they contained the record of much hard and useful work. With justifiable pride he spoke of the high value set on his experiments by Carpenter the physiologist, for whom he expressed strong affection as a friend, and high admiration as a man of science. At this moment, I can distinctly recall the place in which he sat, and the look of unconcealed satisfaction with which he slowly turned over the pages of his unbound sheets, and said that his experiments on the glosso-pharyngeal, pneumogastric, and spinal accessory nerves were certain to keep his name in remembrance among physiologists and physicians long after he had quitted the scene. On that occasion, as also on several other occasions during his four days' sojourn at Putney, we familiarly discussed the fortunes and foibles of certain Edinburgh men, our mutual friends, who, in 1835 and some subsequent years, were known in Edinburgh medical circles as the "cat and dog physiologists of Surgeon Square"—a name playfully applied to them by their former instructor in anatomy, Robert Knox. Yet neither then, nor at any other time, did Reid speak to me regretfully of his experiments on animals. On the contrary, he took immense credit to himself for the accuracy and patience with which he had conducted them, and congratulated himself on having had the operative assistance of two such accomplished and adroit anatomists as his devoted friends James Spence and James Duncan.

One evening when Dr and Mrs Reid were staying with me at Putney, Marshall Hall and Tyler Smith joined our family party to dinner. During dinner Marshall Hall was seized with a transient choking fit when eating—an incident which was discussed by John Reid and me after the London guests had left us. We had both been informed by Tyler Smith that Marshall Hall was accustomed to such attacks, and that their recurrence had several times led him to theorize gloomily as to their meaning, and to say that he was one of many physicians who had suffered from maladies with the explanation of the causes and phenomena of which their researches were identified. Referring to the information communicated by Tyler Smith, John Reid said, with one of his own peculiar ruminative smiles, some words which meant—" My case, too, is one in point." But he added nothing to express or suggest that he had the slightest misgivings as to the justifiability of experimenting on animals with a view to extend and establish the foundations of medical science. John Reid was too conscientious a man, and too frank and true in his friendship to me, to have stopped short on that occasion in disclosing his altered views as to experimenting on animals, had there been any alteration to communicate.

Professor Spence—with whom, when in Edinburgh, during the recent meeting of the British Medical Association, I fully discussed this and other subjects relating to the life and researches of Dr John Reid—agrees with me in thinking it exceedingly improbable that John Reid ever said seriously that his sufferings from cancer were sent as a special judgment for his experiments on dogs, or that he ever entertained in any form an idea so essentially morbid. Professor Spence informs me that he and the late Dr James Duncan visited John Reid at St Andrews together, at the sufferer's special request, a few weeks before his death. At that time, the pain was terrible; and the three friends were agreed as to the hopelessness of attempting any relief by operation. On that occasion he never referred to his sufferings in a way which either implied or suggested that he entertained the morbid theory of the Divine Being imputed to him by the biographer. As Professor Spence and the late James Duncan were — as I know well — associated with John Reid in the closest friendship and affection, and as they had been, moreover, the principal assistants in his most difficult and protracted experiments, it is impossible for me to believe that at the visit to which I have now referred—the last visit he received from his two friends—he believed that his experimental researches were sinful cruelties to be repented of. John Reid was too honest, straightforward, and outspoken to have concealed that opinion from them had he adopted it.

The facts now set forth convince me that the statement, so much made of by the would-be "abolitionists of vivisection," is unreliable, like some other statements in the biography by Dr George Wilson, a work regarding which I desire to say a few words. The author has produced a book in which are collected some materials of great value; but in his amiable anxiety to paint in glowing colours a particular kind of saint, he too often forgets John Reid the physiologist, as he moved in a social and scientific circle, where he was much loved as a genial, joyous companion, an affectionate friend, a painstaking conscientious inquirer into the secrets of nature, a sound reasoner, a man of simple tastes, unswerving truthfulness, nice honour, and a Christianity unsullied by cant. If John Reid ever said, "*This is a judgment on me for the sufferings which I inflicted on animals,*" he said it when in a condition of delirious mental enfeeblement engendered by pain and morphia.

I have been told that during John Reid's lifetime, a sermon was delivered before the Edinburgh Society for the Suppression of Cruelty to Animals, in which a foolish preacher had the bad taste (and something much worse) to inform his audience that a great physiologist was then suffering agonizing pain in the very same nerves on which he had experimented in dogs, and that this was a special judgment for his horrid cruelties! It is possible that this incident may have originated the statement developed in Dr George Wilson's Memoir. Those who arrogantly and impiously speak of "*judgments*" ought to remember the lesson taught by the story of the fall of the Tower of Siloam. As for the officials of the "Society for the Abolition of Vivisection," they might study with advantage the seventeenth chapter of "The Mystery of Edwin Drood," for many vivisection abolitionists remarkably resemble the philanthropists therein painted by Charles Dickens. Mr Crisparkle speaks sensibly and feelingly to Mr Honeythunder, when he says—"I consider the [philanthropic] platform a sufficiently bad example, and a sufficiently bad school even in public life; but hold that, carried into private life, it becomes an unendurable nuisance." . . . . . . "These are strong words, sir," exclaimed the philanthropist. "I hope so," said Mr Crisparkle; "Good morning."—I am, etc.,

JOHN ROSE CORMACK.

[The above letter will carry additional weight to those who know that the author of it, who thus vindicates the memory of his friend, has himself made most valuable physiological researches, and is one of the gentlest and most loveable of men, and by his noble efforts in alleviating the sufferings and treating the wounded, in the siege of Paris, has done more real service to humanity, than is likely to result from the platform spouting of an acre of maudlin sentimentalists or butterfly-hunting and bird-nesting naturalists.]—ED. *E. M. J.*

To the Editor of the Edinburgh Medical Journal.

13th August 1875.

SIR,—Is Dr Littlejohn the appointed or the self-constituted censor of professional opinion in the *Edinburgh Medical Journal*, that he should there by letter combat opinions which were openly stated at the meeting of the Medico-Chirurgical Society, of which he is a member, and where, as well as in private, he has had frequent opportunities to canvass my statements, had the correction of my errors been *all* that he had in view? But whatever his object in making this attack, had Dr Littlejohn's facts and statements been exact, I should have had no reason to object to them. As, however, they happen to be quite inconsistent with my views of what is truth, I must beg space for the purpose of pointing out what I conceive to be his errors.

1. Dr Littlejohn states that, at the Medico-Chirurgical Society, I exhibited "*a part of a thorax* which had been experimented on to illustrate the division of a rib with *an ordinary table-knife.*" I certainly exhibited three ribs attached to their corresponding vertebræ and part of the sternum, but what was experimented upon was not "a part of a thorax," but an entire subject; while the knife which was exhibited was not *an ordinary table-knife*, but a carving-knife, which, when compared with the actual weapon which caused the fatal result in the unfortunate female, was found to correspond with it in every essential particular.

2. Dr Littlejohn states: "The medical witnesses for the Crown allowed the *possibility* of the wound of the chest and the division of the rib having been of accidental origin; but, at the same time, they regarded it as exceedingly improbable that a woman, falling her own height, and coming accidentally against a knife held in the husband's hand, should receive such injuries."

I am aware that Dr Littlejohn admitted the possibility of such an accident, but denied its probability. Of course, we know anything under the sun is *possible;* but denying the probability of such an injury, the experiment which I made became specially "interesting in a medico-legal point of view," as it showed that a wound in all respects precisely identical (if we read fifth instead of third rib) was inflicted under analogous circumstances.

3. "Dr Watson," says Dr Littlejohn, "is of opinion that his evidence led the prosecutor for the Crown to withdraw the charge of murder, and only press that of 'culpable homicide.' So far from this being the case, after Dr Watson had been in the witness-box, the prisoner *twice* proffered the plea of culpable homicide; and this was done at the instigation of his counsel and agents, who had a shrewd notion how the case was progressing. Had Dr Watson's evidence had the weight he attaches to it, the prisoner would have been discharged as 'not guilty,' as an accidental death of the kind spoken of by Dr Watson involves no criminality."[1]

---

[1] Not to do my statements injustice, let me quote the paragraph in the June number of the Journal, p. 1134, which bears upon this point, as it has

Now, Dr Littlejohn knows as well as I do, that the prisoner was tried upon two charges—1. That of murder; and, 2. That of culpable homicide; and that, at the outset, he pled not guilty to both. The trial went on, and, after my evidence, the counsel for the prisoner, addressing the presiding Judge, said his learned friend the Depute-Advocate had informed him that, after the evidence which had now been led, the Crown was willing to depart from the charge of murder, and to accept instead the plea of culpable homicide. His Lordship expressed his entire approval of the course which the Depute-Advocate had pursued in departing from the major charge, and called upon the prisoner to stand up, expecting, as we all did, that he would at once plead guilty to the minor charge. But, so far from this, the prisoner, in a loud voice, most distinctly said, "Not guilty, my Lord;" and it was only after a prolonged consultation in Court with his counsel and agents, and a further consultation in the cell below the Court, to admit of which the Court adjourned for a time, that he could be induced to proffer the plea of guilty of culpable homicide; the prisoner protesting, as I myself heard, that he did not kill the woman, and therefore he could not truthfully proffer such a plea.

We all know that it is regarded as a grave mistake, because calculated to bring the administration of justice into contempt, that the public prosecutor should bring forward a case for trial on a charge of murder, when, upon the face of it, there is not the likelihood of a conviction being obtained. Now, if Dr Littlejohn's version of the story is correct—and it was not the evidence of the defence which led the public prosecutor to express a willingness to accept a plea of "culpable homicide"—why did he depart from the original charge of murder, and accept the plea of culpable homicide at all? for, observe, the issue of this case was not due to any act of the Jury, though technically a verdict was given by them under the direction of the Judge. Was it then Dr Littlejohn's expressed opinion that the wound might *possibly have been accidental*, which led to this result, or was it that Dr Littlejohn's opinions in the witness-box differed from those which he had expressed in the precognition submitted to the Crown? It were vain to speculate further. That the unfortunate man was tried for murder is certain. That this charge was departed from by the Crown, after hearing a portion of the exculpatory evidence, cannot be denied. Such a result could only depend on one of two things; either upon the excellence of the evidence for the defence, or upon the failure of the evidence for the Crown. Dr Littlejohn says it was not the former; be it so, I do not envy him in his choice of the alternative. —I am, Sir, yours obediently, PATRICK HERON WATSON.

---

none of the inordinate self-conceit which this statement would imply:— "From this experiment, then, as well as from a consideration of the reasons already given, he was able to show that the wound causing the death of the woman had not necessarily been inflicted intentionally by her husband, but might have been purely accidental, and this had led the prosecutor for the Crown to withdraw the charge of murder, and only press that of culpable homicide."

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Obstinate Trigeminal Neuralgia as a Symptom of Syphilitic Cerebral Disease, its Diagnosis and Treatment.* By GEORGE W. BALFOUR, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary.

GENTLEMEN,—A good many practitioners, I suppose, unhesitatingly accept the dogma, that neuralgia is the prayer of a nerve for a supply of good blood, treat it accordingly, and are astonished when success does not follow their well-intentioned efforts. It seldom, I fancy, strikes a man who reasons thus as at all curious, that only one nerve should petition for a better quality of that nutritive fluid, which ought to be supplied to all alike; and one of the most singular facts in the history of therapeutics is, that a petition presented by only one nerve is so frequently curatively responded to by a treatment which is not directed to that particular nerve, but is general and somatic in character. Yet the answer is not far to seek. Neuralgia is merely a symptom, and never an essential disease. It may be a symptom of a depressed condition of general vitality, which throws the whole of the nervous system into the position of the *pars minoris resistentiæ*, some local cause then determining the occurrence and the locality of that pain to which we give the term neuralgia. At other times, it is purely a symptom of some local affection of the nerve implicated, quite independent of any depressed condition of the general vitality that may coexist.

The late Dr Anstie, in his admirable work on "Neuralgia and its Counterfeits,"[1] has sought to connect obstinate neuralgia with a definite lesion, which he has described as an atrophy of the posterior root of the nerve affected, produced, as he supposes, by a centripetal neuritis migrans, causing a limited myelitis, which issues in atrophy, the subjective expression of which is neuralgic pain, while in other cases he believes that the peripheral irritation stops short of an actual myelitis, though the result is similar, viz., the production of a non-inflammatory atrophy in the cells of posterior nerve roots, which are congenitally of weak organization. Anstie has brought forward no pathological proof of the truth of this assertion; he has only, by careful reasoning on the facts observed, endeavoured to show its great probability.

---

[1] Macmillan and Co. London, 1871.

More than thirty years ago, Valleix[1] endeavoured to simplify the diagnosis of genuine neuralgias, as distinguished from other painful affections of the nerves, by a reference to certain superficial painful points—as ascertained by local pressure—which he asserted were always present in cases of true neuralgia, but absent in other painful nervous affections. But we know nowadays, that though these painful points are present in most cases of persistent neuralgia, they are as uniformly absent in its early stages.

Anstie and Valleix have, however, both erred in their endeavours to establish neuralgia as a specific disease; the one in attempting to connect it with a specific lesion, and the other in trying to associate it with a special symptom; neither lesion nor symptom being primary phenomena, though both may result from the persistence of the disease, however that may commence. For we know as a fact, that Valleix's painful points are only developed as the result of persistent neuralgia; and Anstie himself has told us, that his hypothetical atrophy of the posterior nerve roots is induced by pre-existent peripheral irritation of the nerve affected. Both of these phenomena, therefore, belong to the same category. They may be eventuations or results of a neuralgia; but the one is no more a cause than the other is an early symptom.

We cannot, therefore, define neuralgia to be a painful affection of a nerve, associated with the presence of certain superficial painful points, because these are not observed till after the persistence of the neuralgic pain for some time. Neither can we define neuralgia to be a painful affection of a nerve depending upon an atrophy of its posterior root, because, even if that does exist, it cannot be regarded as the cause of the pain, but as the result of the persistence of the peripheral irritation which has primarily originated that pain. But neuralgia may be very correctly defined as a more or less persistent pain shooting along a nerve and its branches, recurring in paroxysms of longer or shorter continuance, and followed by painless intervals of varying duration, the cause of which is sometimes obscure.

Neuralgic pain is not a true hyperæsthesia or simply exalted condition of nerve function, but the reverse—a lowering of true function; the relation of neuralgic pain to the sensory nerve affected being precisely similar to the relation of muscular paralysis to the motor nerve involved. From a diagnostic point of view, this is a matter of some importance; for though it is common enough to find neuralgic pain of the superficies associated with some degree of paralytic weakness of the muscles lying beneath, as we frequently find in sciatica, depending upon the law first enunciated by Van der Kolk, that a "spinal nerve gives its motor branches to the muscles as instruments of motion, and its sensitive branches to the parts moved;"[1] yet we also occasionally find that the motor branches of the neuralgic nerve are wholly unaffected, and that the paralysis which is present depends upon injury to quite a different nerve; and this is specially the case with the trigeminus. There are certainly anatomical reasons which facilitate the occurrence of this peculiar phenomenon in connexion with this nerve, but these do not lessen its diagnostic importance. The occurrence of pain and paresis in the peripheral parts to which are distributed the terminal branches of any one nerve having a motory and a sensory root, leaves us pretty much in the dark as to the nature of the causative lesion; or, at all events, leaves us to discover the nature of that lesion as best we may by careful consideration of the commemoratives and antecedents of the patient, combined with due regard to the accompanying phenomena present in the case. Frequently the task is difficult enough. If we can localize the lesion, however, our difficulties not unfrequently vanish: and we have an interesting and instructive example of this in trigeminal neuralgia.

---

[1] Traité des Névralgies. Paris, 1841.

In one of his epigrams Martial has said—

> "Mentula quum doleat puero, tibi, Nævole, culus,
> Non sum divinus, sed scio quid facias."[2]

But our diagnostic powers are nowadays greatly more accurate and refined, and a single glance at a man's countenance will often reveal the disease under which he labours, in a manner which admits of no denial. I by no means say that it will accurately reveal his antecedents, for unfortunately syphilis is so readily communicated, that it occasionally occurs through no fault of the recipient; impure connexion, however innocently permitted, being by no means a necessary precursor of even the most serious disease. And in this respect regional diagnosis is therefore not unfrequently much superior in accuracy to any antecedent history we may obtain from the patient, however truthfully that may be given.

Von Graefe[3] asserts that about one-third of the paralytic affections of the muscles of the eye are due to syphilis. Lancereaux in effect says much the same thing, but he has discriminated the lesions of the different nerves, and, while almost entirely exculpating the fourth pair from any participation in syphilitic disease, he has pointed out that the third pair are so frequently implicated in syphilis, that this form of paralysis should always suggest the idea of this disease.[1] Soelberg Wells[2] adds that in many cases it is impossible to determine with accuracy the precise seat of the lesion; and while accepting in its entirety Von Graefe's statement, he yet believes that such paralysis only indicates the nature of the lesion, but not its seat, though it ought to have an important influence upon the treatment, rapid recovery frequently following the proper use of antisyphilitic remedies.

---

[1] On the Spinal Cord, etc., New Syd. Soc. Trans., p. 7.

[2] Epigram. lib. iii. n. 71.

[3] Soelberg Wells, Diseases of the Eye. London, 1868, p. 565.

Wells's statement is certainly true so far as simple paralysis of the nerves going to the muscles of the eye is concerned, and a very much stronger similar statement may be made in regard to simple trigeminal neuralgia, which is only rarely of syphilitic origin, though probably more frequently so when associated with paresis of its motor root. But it is a very different matter indeed when the concomitant occurrence of trigeminal neuralgia with paralysis of any of the nerves going to the muscles of the eye links them together in a common cause, and assigns to that cause a specific locality—the cavernous sinus: for just as a glance at the face of a patient with a skin affection on his nose shows that he must labour under one of three or four diseases, the odds being considerably in favour of acne rosacea, so if we can localize disease about the sella turcica, the probability is at least as great that it is syphilitic in character; nay, the probability is so great as not only to outweigh any disclaimer on the part of the patient, but to warrant our employing a specific treatment without further inquiry; and if we are not always successful, it will not certainly be because our remedies have been ill-chosen. It is of importance to recognise the true nature of this affection as early as possible, and to treat it properly, as otherwise it is prone to progress to more serious manifestations of disease; and, indeed, this is only too frequently the case, even when the disease is duly recognised and properly treated. Now and then, however, we have the persistence of the neuralgic symptoms without material alteration for a considerable time, even although the character of the disease has been unrecognised, and of course improperly treated. Some years ago we had a very interesting case of this kind in Ward XIII. This patient came in with a history of eight months' neuralgia, persisting in spite of the employment of every remedy that could be thought of as antiperiodic, anodyne, or narcotic; in fact, for eight months she had been treated unsuccessfully with all the most approved remedies for obstinate neuralgia of the frontal nerve, and yet this disease she certainly laboured under in a most marked form, including Valleix's painful points. This case, you will see, gives us a very instructive example of the importance of regarding neuralgia, however well marked, as merely a symptom, and not as an independent disease. Had this idea occurred to the minds of those under whose care this patient had previously been, they would certainly have taken some pains to ascertain what concomitant symptoms or signs coexisted to indicate the nature of the disease upon which the neuralgia depended. These were neither many nor far to seek, and had, indeed, been observed, though their importance had been ignored.

---

[1] Treatise on Syphilis, New Syd. Soc. Trans., 1868, p. 94. [2] *Loc. cit.*

Observing her right eye to be covered by a black patch, I inquired the reason of this, and was told that one of her medical advisers had recommended her to wear this patch, in order to counteract a bewildering diplopia which existed when both eyes were uncovered. Upon uncovering the eye, an internal strabismus was found to exist, but there was no alteration of the pupil; and beyond slight weakness of vision, no subjective symptoms present except the neuralgic pain and the diplopia, and nothing objective beyond the internal strabismus. But this was quite sufficient; we had detected functional depression in two nerves, which had no connexion with each other, beyond being contiguous to one another in the cavernous sinus; but the cavernous sinus is *par excellence* the region of cranial syphilis. She was, it is true, a respectable married woman, to whom the word syphilis was not to be mentioned; neither was it; but the inexorable logic of facts is not to be ignored with impunity, so we treated her with antisyphilitic remedies, and rapidly cured her. By-and-by, I discovered that about two years previously she had an obstinate sore throat, with loss of voice, and that at that time the suspicion of syphilis had been entertained. There can be no reasonable doubt that the sore throat, the neuralgia, and the diplopia were all alike symptomatic of acquired syphilis. The treatment was simple enough. She was at once put upon a mild mercurial, the one selected being the red iodide of mercury in solution:—

℞ Hydrargyri bichloridi, . . gr. i.
Potassii iodidi, . . . ʒ ss.
Aquæ fontanæ, . . . ℥ ii. Solve.
Sign. One teaspoonful twice a day, in water.

This solution is not apt to produce any derangement of the stomach, and it may be given for many months continuously without risk of salivation. I have given it every day for a whole year without producing anything more than a slight tenderness of the gums, for which, at last, it had to be stopped for a time. Consequently, it can be safely employed even in cases where we do not see the patient frequently. It is also, in most cases, very effectual; in the present instance, within a week, the neuralgic pain was much relieved, and in a fortnight it was gone. The paralysis, no doubt, persisted, but, by careful faradization of the external rectus, that also was got the better of after some little time. The patient was dismissed cured, and has since kept well.

On 15th July 1868, a patient[1] was admitted into Ward VII. of the Royal Infirmary, labouring under paraplegia. He could only assume the erect posture with great difficulty, and when attempting to walk, which he could do with the aid of a stick, he dragged his toes with a staggering gait, the right leg being more affected than the left. Beyond pain on pressure over the two last dorsal vertebræ, and incontinence of urine, which had been constantly dribbling away for four months, there were no other symptoms present; but the history of syphilis was clear enough, and was not denied. The case is interesting, from our present point of view, in that, about eighteen months before admission, seven months after he first contracted syphilis, he had severe neuralgia, first affecting the left frontal nerve, and after that got better, the left one. At that time he was treated with pills, which he says made his mouth sore, but cured his pain. When he came under treatment for the paraplegia, his gums were spongy and his tongue moist and flabby, so he was put upon full doses of the iodide of potassium, and this, with faradization of the muscles of the limb, restored him so completely that, when discharged, he walked without difficulty, though like a feeble person. He went home to carry out the treatment further.

---

[1] Daniel Goodfellow, admitted 15th July, discharged 2d September 1868.

But the following case is even more interesting, showing, as it does, how the symptoms altered as the disease progressed, and, finally, giving us ocular demonstration of the truth of the diagnosis.

Sarah Bryce, aged 21, admitted into Ward XIII. on 9th September 1872, complaining of sickness, giddiness, and frequent headaches, along with violent pain in the right eye, shooting along the course of the frontal branch of the fifth nerve. This had commenced about a fortnight before admission. For the last two years, the patient says she has suffered more or less constantly from neuralgia of the head and face. It commenced gradually, and on the left side at first, the left eye having been affected the winter before admission for a period of two months. For eight months she had total suppression of the catamenia, which had been previously irregular, not having occurred oftener than six times during her two years of ill health. Her health had been much enfeebled since the suppression became total; previous to the irregularity it had been quite good. The summer before admission she had an ulcerated sore throat. The patient's mother died while she was a child. Her father was then alive and in good health. She had five brothers and sisters alive and in good health, one brother being weak-minded. She also had another sister who died at the age of eight years of water in the head (tubercular meningitis). Here, you will observe, we had a weakly female, apparently, from the family history, with some predisposition to nervous disease, complaining of persistent neuralgia, shifting from nerve to nerve—not a very uncommon form of disease, nor one presenting any very definite indications for other than simple tonic treatment. Her pulse was slow, feeble, and regular; her heart's sounds somewhat louder than usual; her tongue moist and clean; appetite feeble; bowels regular; her urine normal, sp. gr. 1022; and, in the absence of any very definite reason for the pain, any specific history, which, from the nature of the case, was suspected, having been obstinately denied, she was put upon full doses of the bromide of potassium in a bitter infusion. Seven days after admission, however, slight ptosis of the right eye made its appearance, and, in spite of all denials, the syphilitic history was at once apparent. She was at once put upon the solution of the red iodide of mercury. For a time the symptoms rapidly increased, and about a fortnight after the first recognition of the ptosis, we had external strabismus with double vision, of such a character that when the object was held in front of her the false image was seen an inch and a half or two inches to the right of the true one. There was drooping of the right upper eyelid, which, however, could be slightly elevated by the action of the occipito-frontalis, this being, however, readily prevented by slight pressure on the superciliary ridge. The eye was incapable of being moved in any direction except outwards, the external rectus being the only muscle not paralyzed; the pupil was permanently dilated, but under the influence of Calabar bean it contracted from three lines and three-quarters to two lines.

In accordance with what I have already stated, the diagnosis in this case was obvious enough; we had evidently to do with a syphilitic gumma, implicating the third nerve very seriously, and pressing upon the frontal branch of the fifth; the fourth nerve was also apparently implicated, though that is a nerve but rarely affected in similar cases. The situation of the tumour was evidently in or upon the right cavernous sinus, close to the sella turcica. Under treatment the headache and supra-orbital pain were removed, but the motor paralysis remained unchanged. The patient was discharged in this state on 16th November, with orders to return in a week or two. On 25th November Sarah Bryce returned to Ward XIII., complaining of a recurrence of her headache and neuralgic pain; she was at once put upon the red iodide, and in a few days the pains again left her. She at this time complained somewhat of her left eye, which was slightly congested, apparently from over-exertion in reading; the pain and congestion ceased upon this being forbidden. On 7th December a new feature was observed, the pain remaining in abeyance and the eye symptoms *in statu quo;* it was noticed that, though the patient was perfectly sensible and intelligent when spoken to, she was restless, and wandered about the ward, changing the medicine bottles, and opening presses and taking out things which did not belong to her; all this was done aimlessly, without any assignable reason. She answered questions readily, and did at once what she was bid; had a fair appetite, and her general health was good; but she was restless both by day and night, the night-nurse having great difficulty in keeping her in bed. On 19th December, the ocular paralysis remaining the same, the headache and neuralgic pain had entirely ceased, her general health was good, and her appetite ravenous; but to her restlessness and desire of appropriating what did not belong to her, irritability of temper was now superadded, and she threatened to strike when anything was taken from her. At last, on 21st December, on one of the patients remonstrating with her for taking some of her belongings, Sarah struck her on the cheek, the other retaliating with a slap on the face. Upon this Sarah Bryce fell on the floor, and was apparently unconscious for a few moments; on being put to bed she was quite sensible, but in a dreamy stupid state; she complained of some pain in the right supra-orbital region, and the pupil of the left eye seemed more dilated than usual, though not equal in size to the right. While she remained unconscious the nurse noticed that during expiration her cheeks were puffed out, and whenever she made any exertion, such as attempting to get out of bed, this puffing always recurred. Her pulse was only 80, full, and of fair strength. Ice was applied to the head by the resident physician, and at the visit half-drachm doses of the iodide of potassium were ordered three times a day. But the end was now rapidly approaching: from this time she ceased to feed herself, and by the 25th the nurse had the greatest difficulty in getting her to swallow her food and medicine. On 23d December ptosis of the left eye was first noticed, and it gradually increased; her pulse rose to 100, 112, and 120; her tongue got dry, and with the teeth became covered with black sordes; she was kept alive in this state for a few days by enemata of beef-tea and brandy, but died at last on 1st January 1873, at 5.30 P.M.

At the post-mortem examination a small quantity of serum was found in the lateral ventricles; at the base there were some adhesions about the sella turcica, occupying which was a gummy tumour of a gray colour, one inch in length, half an inch in thickness, and three-quarters of an inch in breadth at its broadest part. This tumour was irregularly pyramidal in shape, its base was attached to the pons varolii, and its substance here blended with the nerve elements constituting the surface of the pons, but it did not penetrate deeply into its interior. Its apex extended forwards between the two crura cerebri so as to cover the two corpora albicantia and the posterior part of the tuber cinereum, which were soft and pulpy. Laterally it was in contact with the crura cerebri on each side, overlapping the right one, the inner half of which, as also the origin of the third nerve, were much softened and destroyed, as was also the inner aspect of the left crus at its attachment to the pons. The tumour was of firm consistence, composed of several nodules bound together by connective tissue. The centres of the nodules were white and opaque; the outer zones of these nodules were firm but translucent. It was not examined microscopically. The autopsy in this case therefore completely confirmed the diagnosis, Syphilitic affections of the nervous system are often obscure enough in their diagnosis, but it is important to remember that neuralgia is always a symptom and not a specific disease, and that if trigeminal neuralgia is associated with symptoms of paralysis of the third, the sixth, or more rarely the fourth nerve, we need no further proof of its origin, but are perfectly justified in treating it as syphilitic, and in many such cases we shall be rewarded by obtaining a rapid cure both of the neuralgia and the paralysis. In slight degrees of diplopia with no visible strabismus, the affected eye may be readily detected by making the patient walk a few steps, covering first the one eye and then the other; when the healthy eye is covered, the patient will stagger and feel giddy from his inability to co-ordinate the muscles of the affected eye.

ARTICLE II.—*Enlargement of the Pineal Gland and Sclerosis of the Brain, in a Case of Chronic Epilepsy, with Amentia and Aphasia.*

By GEORGE SHEARER, M.D., Liverpool.

SARAH S., æt. 16, an epileptic from early infancy, the fits first manifesting themselves when she was five months old, in the slighter form of general tremors, after exposure to the sun one hot July day. On this particular day she was carried by her nurse into one of the parks, and came home screaming out as if from pain, which ended in a modified convulsion fit; but whether the heat affected the child's head, or she had been frightened, or had had a fall, could never be distinctly made out. The fits continued to recur and to increase in severity, so that although she was beginning to talk and prattle as well as most babies of her age, yet by the time she was two years old the faculty of speech left her altogether. Since then she has been a perfect mute, and the degree of intelligence so feeble that she might be considered semi-fatuous. She would amuse herself for hours together in wringing her hands, in gazing at a doll, or twirling a pirn of thread. She would smile if her food or anything gave her pleasure, knew everybody in the house, and would rise up and walk forward to her meals when called; but she has never learned to read or write, has no youthful playmates or associates, knows nothing of the distinction of days or seasons, of church or school, of the relationships or duties of life, and is exceedingly filthy in her habits. There is just the semblance of memory, as she smiles and points with her fingers whenever her father's portrait is shown to her. He died when she was eight years old.

The fits used to recur with tolerable regularity, at intervals of a fortnight, and during these she has more than once fallen down stairs, and scalded and otherwise injured herself.

12th March 1875.—Three days before my visit she fell forward in a fit and scalded herself over the neck and chest, but not extensively, with boiling water. I found her in a state of deep stupor, verging on coma, with dilated pupils, a quick small pulse, and some degree of febrile action. She could swallow automatically, but never rallied again to consciousness, and died comatose during the night. At the mother's request, who is a highly intelligent woman, and was extremely anxious to know whether the cause of the fits could be ascertained, I performed a post-mortem examination of the body, twelve hours after death.

Rigor mortis complete, marked expression of the hebetude of epileptics, pupils dilated, mouth large, coarse, with great irregularity in the position of the front teeth, and considerable intervals between several of them.

Body well nourished, and of average size.

There is a black adherent eschar of true skin adhering closely to the whole of the scalded surface, on the right side of the chest and neck, exceeding the size of the outstretched hand and fingers. It is difficult to believe that, in a healthy individual, so slight an accident could have resulted in death; the effect of the scald, in this damaged brain, being to induce an attack of fatal apoplectic cerebral congestion.

The lungs are perfectly healthy, and in a state of full expansion. There is some excess of pericardial fluid, but the heart and its valves are sound. There is also an excess of fluid in the peritoneal cavity, the increase of serosity taking place probably shortly before death, by transudation from the congested capillaries of the internal organs. The liver and spleen, kidneys, and pancreas are healthy; the gall-bladder containing bile, and the urinary bladder urine.

The stomach exhaled a vinous odour, and contained some segments of undigested orange. There is some dark venous marbling under the peritoneal covering of the stomach, and the mucous membrane along the greater curvature is marked by tracts of congestion and ecchymosis in reticular form, mingled with patches of a grayish or dusky colour (alterations in effused blood). There are also a few patches of superficial erosion. The duodenum is deeply congested, of a dull fiery glow, and the mucous membrane is softened, gray, and granular, looking like ground glass, or the cornea in a state of superficial ulceration. It had quite lost its smooth velvety appearance, and this condition existed from the pylorus some six inches downwards, amongst the valvulæ conniventes.

The mesenteric glands were not enlarged.

Brain.—The calvarium was normal; no osteoma; membranes healthy, non-adherent. Superficial veins much engorged over the general surface. The brain was not misshapen, nor undersized; lobes equal. *Its texture, however, was firmer, drier, and more leathery than usual, resembling the consistency of hard-boiled white of egg.* It presented fewer vascular points than the normal brain, and seemed to contain less blood.

The sensory nerves, cerebellum, and medulla seemed natural; but, on separating the cerebellum from the overlapping posterior cerebral lobes, lying upon the corpora quadrigemina and overlapped by the posterior extremity of the corpus callosum, I discovered a small tumour, about the size of a small filbert, or the terminal digit of my little finger, composed of firm grayish or reddish-yellow cerebral substance—in short, an *enlarged pineal gland.*

The medulla oblongata and spinalis seemed perfectly healthy.

Schroeder Van der Kolk has laid stress upon the intimate relationship which exists between the corpora olivaria and the nerves of speech, and has given many striking examples where a morbid state of these bodies manifested itself in the destruction, more or less complete, of the faculty of speech. But, as in this instance no defect in structure or development could be traced in the olivary bodies, we must consider the aphasia as one of the results of the general sclerotic state of the brain-substance, which rendered it a sorry medium for the generation and conduction of mental and motor action.

The sequence of phenomena would, therefore, appear to be:—

1st, A congenitally enlarged pineal gland acting on what has been shown, by the experiments of Schroeder Van der Kolk, Kussmaul, and Tenner, to be the *excitable centre* of convulsive actions—a district of the brain lying behind the thalami optici, and above the medulla spinalis, and corresponding with the medulla oblongata. The tumour must be regarded as the cause of *the epileptic affection* in contradistinction to the cause of *the fits*, which might be induced by a hundred and one causes of irritation, centric or excentric, but which probably in all cases act instantaneously through the vaso-motor system of nerves in producing a transitory spasm of the muscular fibres of the arteries of the brain, and consequent arterial anæmia.

2d, The exposure to the sun, or fall, or fright, at the fifth month, must be regarded as the exciting cause of the first convulsion fit, which, leading others in its train, at length developed into a habit of life from some ill-understood law of the nervous system.

3d, The perpetual recurrence of the fits, with the consequent violent alternations from anæmia to plethora in the vascular supply within the brain, gave rise, doubtless, at length to the peculiar alteration and hardening of the texture of the brain, so evidently incompatible with any but the lowest degree of mental power.

ARTICLE III.—*Notes of a Case of Ulcerating Endocarditis.* By ALEXANDER R. COLDSTREAM, M.B., C.M., L.R.C.S. Ed.

THE following case occurred this summer in the practice of Dr Lockie of Carlisle. It is recorded merely on account of its presenting, in its general features, a typical example of a somewhat rare disease.

M. R., female, aged 12 years; had always been considered a delicate child by her parents. For the last six years the medical attendant of the family has known her to have a mitral systolic murmur, and to suffer from frequent attacks of epistaxis: had never been known to suffer from articular rheumatism, or to complain of pain in the chest. The father had rheumatic fever several years ago, and now suffers from chronic rheumatism and sciatica. Four years ago, a sister died from disease of the hip-joint and phthisis. Other members of the family healthy.

Patient was first seen on 19th May. On examination, she was found to be suffering from a swelling of the right cheek and eyelids, occasioned by a carious upper molar tooth, in connexion with which was a sinus in the gum. The child was languid and fretful. The tongue was furred, but there was no febrile disturbance. Extraction of the offending tooth was performed the next day.

On the day following, 21st May, the swelling of the right cheek was much the same, and some swelling was now observed on the opposite side, both cheeks being of a dusky-red colour. The child was still fretful, and slightly feverish. The bowels had been freely moved by an aperient given the previous evening.

22*d May.*—On being closely questioned, the patient had nothing definite to complain of beyond a feeling of weariness. The cheeks were still swollen and red. The heart's action was rapid and violent, the systolic murmur being well pronounced. There was thirst; no appetite. Bowels continued to be freely moved. Morning temperature, 102·5°.

23*d May.*—Patient complained of pain in the left ankle, which was slightly swollen, but not discoloured. The bowels continued loose, but the motions were not frequent. Morning temperature, 103·6°; pulse, 136.

24*th May.*—Patient looked much exhausted, and it was reported that she had been very restless since last visit. The left ankle was now swollen, tender, and reddened. Bowels had moved twice during the night. Temperature at 4 P.M., 101°. Patient was believed to be suffering from acute rheumatism.

25*th May.*—Patient had a typhoid aspect; had begun to mutter incoherently on the previous evening, and had continued more or less delirious ever since. The cardiac action was excessively violent, the pulsation of both anterior and posterior tibial arteries being distinctly felt all down the legs. She complained of pain in the wrist and metacarpo-phalangeal joints on one side, with tingling sensations in the finger-tips. Diarrhœa continued.

26*th May*, 1 A.M.—Delirious and sleepless. Temperature, 103·1°.

10.30 A.M.—Radial pulse very feeble—could not be counted. Temperature, 104·5°.

3.30 P.M.—Patient still weaker, muttering and moaning, quite unconscious. Pulse imperceptible at wrists, but distinctly and forcibly felt, though of a jerking character, in femorals and carotids. Died about 4 P.M.

Autopsy, twenty-four hours after Death.—Thorax.—Pericardium fixed by old adhesions anteriorly, over the left surface and at the apex. Heart enlarged. About two drachms of serous fluid in the pericardium. Left auricle contained a large clot, part of which was decolorized, not stratified. On the endocardium of the left auricle, at the left side, was a rough ulcerated surface about one inch and a half in length and three-quarters of an inch in breadth. This ulcer was of a pink tinge. It extended as far as the margin of the mitral valve, but did not implicate the auricular surface of this valve. In depth, it was confined to the layers of the endocardium, no muscular substance being exposed. The posterior segment of the mitral valve was thickened and rough, but not congested nor ulcerated. The anterior segment was very small. Three small ecchymoses stained the septal surface of the endocardium in the left ventricle. In one of the segments of the tricuspid valve was an old perforation, but no evidence of recent inflammation. Two small ecchymoses were found on the surface of the right lung. Bronchi full of frothy mucus.

Abdomen.—In the substance of the liver were four dark red ecchymoses. The spleen was large and diffluent; it contained two triangular infarcti of a uniformly red colour. In the cortical substance of the right kidney was one well-marked infarctus, about half an inch in length, and of a linear shape; it was dark red at the circumference, and yellow in the centre. The left kidney contained two pyramidal infarcti, neither so long as that in the right. The mucous membrane of the small intestine was dotted over with numerous brilliant ecchymoses.

The brain was not examined.

Remarks.—This case seems to be doubly illustrative of Trousseau's remark, that ulcerating endocarditis generally occurs "in the course of a rheumatic affection, or as the sequel of . . . an old or recent heart affection."[1] Though no history was to be obtained, it is more than probable that the child had previously suffered from endocarditis, judging from the thickness and roughening of the mitral, and the perforation in the tricuspid, valve. It more usually happens that the ulceration attacks the endocardium covering the valves. In this case it seemed to be confined to the endocardium lining the wall of the left auricle. The infarcti in the spleen and kidneys were indicative of the products of ulceration having been swept from the endocardium by the blood-current, which having become impacted in some of the small vessels of those organs, the adjacent vessels enlarged, ultimately gave way, and a tract of extravasation was formed. The diarrhœa may be accounted for by the presence of the ecchymoses in the small intestine. Enlargement of the spleen is noticed in two cases of the same disease, recorded in the *Lancet* for 1868 and

---

[1] Trousseau's Clinical Medicine, vol. iv. p. 459.

1873. The diagnosis of "ulcerating endocarditis" was suspected the day before death. On the day she died, the presumption was strengthened, on account of the rapid prostration, delirium, and general typhoid condition indicative of blood-poisoning, these symptoms being out of all proportion to the amount of articular disturbance.

ARTICLE IV.—*A Case of Accidental Poisoning of a Child, two years and three months old, by Two Drachms of Bow's Liniment. Recovery.* By CLARKSON CUTHBERT, M.D., F.R.C.S.E.

(*Read before the Medico-Chirurgical Society of Edinburgh, 21st July.*)

ON Saturday, 1st May of the present year, about 5.45 P.M., Jessie Ann R., a fat well-developed child, two years and three months old, during the temporary absence of her mother, seized hold of an ounce phial, containing twopence worth, or two drachms, of Bow's liniment, a compound consisting essentially of soap, opium, spirits of wine, and strong ammonia, which her sister had just brought in from a druggist, and swallowed nearly the whole contents, leaving only a few drops in the phial.

The screams of the poor child attracted the attention of a woman who was in an adjoining room. She found her holding by the table, breathing with great difficulty, and suffering the most intense agony. She made an alarm and obtained the assistance of a neighbour, who immediately administered a quantity of table-salt dissolved in water, and then in a short time an emetic of mustard, which brought on free vomiting. He then ran off to the druggist, explained the nature of the accident, obtained an emetic of sulphate of zinc, and gave it also, but it did not act so freely as the other emetics.

At 6.15 I was summoned, and found the child on its mother's knee struggling violently, and breathing like one suffering from an attack of inflammatory croup. She was quite sensible; she was very pale; the lips were much swelled and blistered; the tongue and the lining mucous membrane of the cavity and back of the mouth were also swelled and inflamed; and there was a red mark from the mouth to the chin, as if some irritating fluid had run down. The pupils were normal. I tried to get her to swallow an emetic of sulphate of zinc. She only got a little into her mouth, which she spat out, along with some shreds of mucous membrane. I did not persist in giving the emetic. The child was suffering much from the blistering effects of the ammonia, and my great fears were that she would choke. I therefore substituted olive-oil, and gave several teaspoonfuls, which she swallowed greedily. It had a most soothing and cooling effect. A small quantity of the oil was vomited, of a light brown colour.

The child was now beginning to get drowsy. I caused the father to walk her up and down rapidly, at the same time shaking and slapping her smartly.

At 7 o'clock I sent off for my magneto-electric machine, and in the meantime, as the infant was becoming comatose, cold, and showing symptoms of sinking, I injected a little whisky, warm water, and milk, into the rectum, and applied mustard poultices along the spine, and caused flannels wrung out of hot water to be kept constantly applied to the feet and legs.

At 7.45 I commenced to apply the poles of the battery of the weakest strength, alternately over the pectoral muscles, along the sides of the chest; to the calves of the legs, and to the tips of the ears. The child could be roused out of its lethargy and made to cry, and toss about its arms in its endeavours to knock away the annoyance; but whenever the current was stopped it immediately dropped into a deep sleep. Every now and then half a teacupful of beef-tea, prepared from Liebig's extract, with a teaspoonful of brandy added, was thrown up the bowel.

On examining the heart and pulse, they were both found to be gaining strength. The temperature was not taken by the thermometer, as, under the stimulus of the electricity, the child tossed about so much, and was held on the knee with difficulty. Besides, I was afraid of losing ground in waiting for the mercury to rise. But taking the impression from my own hand, I found the whole body very cold.

I sent for Dr Menzies, and from his examination of the heart and pulse, he was of opinion that the patient would recover, and strongly advised going on with the application of the electricity.

By 11 o'clock there was a decided improvement; the pupils became more dilated, and contracted slightly when a lighted candle was brought near to them; the action of the heart was regular, and the pulse of moderate strength; and the movements and cry of the child were stronger. I got a teaspoonful of olive-oil over the throat.

This improvement continued for half an hour, when suddenly a change for the worse became visible. A most offensive odour, like stinking rotten cheese, came from the mouth; the action of the heart became weaker; the pulse fell in strength and number of beats; the pupils became contracted to their old pin-point size; the stertorous breathing returned; and the general surface of the skin became cold and pale. In fact, the patient exhibited all the symptoms of collapse from re-poisoning.

I now increased the strength of the current, and injected into the bowel half a teacupful of strong beef-tea, mixed with a teaspoonful of brandy. This was repeated in half an hour. The child's sleep was most profound, from which she was not easily roused. This doubtful condition continued for an hour and a half, when, about 1 o'clock, an improvement gradually took place. She opened her eyes for the first time and stared about her. The pupils were dilated a little, and the action of the heart and strength of the pulse were much improved, and the face and surface of the body assumed a more natural hue. I took this opportunity of testing the temperature, and found it 101·5°. After swallowing a little milk she again dropped off into a death-like sleep.

By continuing the electricity with intervals of rest of three to five minutes, I could always rouse her up; and occasionally, she would open her eyes, look about, and recognise her father. The offensive odour from her breath became less apparent. Her struggles were much stronger, and requiring a great amount of force to hold her on the knee. It was now quite evident the strength of the poison was nearly expended.

At 3 A.M. I considered her so far out of danger that she was allowed to sleep for ten minutes at a stretch, to be again awakened, and again to be allowed to drop off for another ten minutes' deep sleep. Each time she was aroused a teaspoonful or two of milk was administered. I thought it best to let her have a little undisturbed sleep, in order to obviate a tendency to exhaustion, which would likely take place after so many hours' constant application of electricity.

4 A.M.—As the little patient was now quite out of danger, I made preparations for going home, and gave the father instructions to apply the battery every thirty minutes, and to administer nourishment either in the form of milk or beef-tea.

During the forenoon I again saw her; she was sleeping calmly and naturally, and had partaken largely of milk. Any other food she could not get over, owing to the tender state of the mouth and back of the throat.

I attended her subsequently for several days, but it was chiefly for the sores caused by the ammonia. She ultimately made a perfect recovery.

Remarks.—As Bow's liniment is not a pharmaceutical preparation, I called upon the druggist from whom it was purchased, and examined his formula for making it; it is as follows:—

Take of Opium, - - - -	1 part.
„ Spanish Soap, - - -	⅛ part.
„ Compound Spirit of Camphor, -	8 parts.

Mix. Macerate for eight days.

In two drachms of this liniment there are fifteen grains of opium, equal to 220 minims of laudanum, and half a drachm of strong ammonia; the remainder being made up of soap, camphor, oil of lavender, and spirits of wine. But the drugs which more particularly concern us at present are the opium and the ammonia.

It is seldom that the physician is called upon to treat a case of poisoning from so large a dose of opium in one so young as my little patient. It may be said also that the recovery is not less remarkable. Opium is a drug when swallowed that soon passes into the system; and, according to Professor Orfila, it is more energetic when applied to an abraded surface. Now, as one of the ingredients of the liniment was strong ammonia, a very corrosive fluid, it is highly probable that the stomach of the infant would be partially denuded of its mucous membrane—that it had this effect in the mouth was evident, for I wiped some shreds off the tongue—and thus, probably, a very large quantity of the poison would be quickly absorbed, causing it to act with increased energy, and hence, probably, the greater length of time and difficulty in bringing about the recovery.

Professor Taylor, in his work on Medical Jurisprudence, relates some very interesting cases of the action of opium on infants; they are briefly as follows:—A child of four months old was nearly killed by the administration of one grain of Dover's powder, equal to the tenth of a grain of opium. To another child, four years and six months old, four grains of Dover's powder, equal to less than half a grain of opium, were given; it soon became comatose, and died in seven hours. Another case is related of a child nine months old, who was killed in nine hours by four drops of laudanum, equal to *one-fifth part of a grain* of opium. He quotes from the *Medical Gazette*, the case of an infant who was killed by two drops of laudanum, equal to *one-tenth part of a grain* of opium; and from the *Lancet*, in which an infant *seven days* old died in eighteen hours from the effects of *one minim* of the tincture, or the *twelfth part of a grain* of opium. The smallest fatal case on record is one communicated to Dr Taylor in November 1857, by Dr Edwards of Liverpool. "An infant, four weeks old, died from the symptoms of poisoning by opium, in seven hours, after a dose of paregoric elixir, equivalent to *one-ninetieth* of a grain of opium, had been administered to it."

As regards the treatment in cases of poisoning by opium, especially in infants and young children, no doubt early free vomiting is of the first importance, either spontaneously or by emetics. But, as Professor Sir Robert Christison remarks, "it is by no means easy to remove all the opium by vomiting; for it becomes so intimately mixed with the lining mucus of the villous coat, that it is never thoroughly removed till the mucus is also removed, which is always effected with difficulty."

There is also another mode of removing the poison from the stomach, and that is by the stomach-pump. In the case of infants I should think it would be useless, and, certainly in the case of my patient, worse than useless; for the mouth and passages leading to the stomach were so swelled and inflamed, that much danger would have been incurred in attempting to push the tube along the tender structures, either from tearing the parts or in choking the child.

After vomiting has been promoted as early and as freely as possible, the constant application of the interrupted current seems to me to afford the best chance for recovery; the strength of course must be regulated according to circumstances.

Several years ago I read a paper before the Obstetrical Society of this city, in which I related the case of an infant six weeks old, whose father gave it six drops of laudanum at 4 P.M.; about five hours afterwards I found it quite comatose, and, in all probability, it would have died in a very short time had I not kept the patient under the influence of the electric current for a long time—about four hours. The infant made an excellent recovery. On two other occasions of poisoning from opium, patients of Drs Burn and Menzies, I applied the interrupted current for a considerable time when they were in a state of deep coma, and they also made perfect recoveries.

ARTICLE V.—*Note on the After-Treatment in Excision of the Knee-Joint.* By JOHN CHIENE, M.D., Assistant-Surgeon Edinburgh Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Edinburgh, 21st July.*)

DURING the autumn of 1874, a suitable case for excision of the knee was admitted into the Surgical Clinical Wards of the Royal Infirmary. The case was one which I wished to treat antiseptically. The most efficient means of after-treatment that had come under my notice was Dr Watson's immovable apparatus, fixed with plaster-of-Paris according to his method. This appeared unsuitable on account of the necessarily large size of the antiseptic dressing, and the frequency with which it would require to be changed during the first few days after the operation. Any apparatus to be applied in its stead would require to command the hip and ankle joints, so as to keep these joints at rest during the changing of the dressing. At the time, I could think of nothing better than the long splint, with a strong iron bracket stretching from a point a little below the trochanter to a point above the ankle; the splint itself being fixed by a permanent bandage to the chest and pelvis above and to the foot below. Two lateral splints were applied to the knee, and a posterior splint extended from the fold of the buttock to the heel, which could be firmly fixed to the long splint above and below the bracket. This case, although tedious on account of sinuses, ultimately did well, and the little girl is now walking about with a high heel to her boot, and a firmly anchylosed knee-joint. In this case there was no attempt at extension; there was in consequence a tendency to tilting backwards of the tibia by the contraction of the posterior flexor muscles of the thigh, and it was with some difficulty that the bones were kept in proper position.

A consideration of this case and its results suggested to my mind the advisability, if possible, of preventing in similar cases all muscular action; and in the next case that occurred, I intended to use the long splint as described above, with the addition of extension with the perineal band,—in other words, to treat the case as *a compound fracture of a long bone extending from the hip to the ankle.* A case was admitted this summer suitable for the operation, and the idea then occurred to me that the extension apparatus would effectually attain the object in view. The objection to its use seemed to be, that if a weight was applied to the foot sufficient to steady the hip-joint, and to weary the posterior muscles of the thigh, and prevent all muscular contraction, there might be a tendency to too great separation of the cut surfaces of the femur and tibia, and proper union would be interfered with. On the other hand, as I had never noticed this tendency in compound fractures treated with the extension apparatus, I did not anticipate that by its use union would be prevented in the excision. It was evident, that a lighter weight than is required in fractures would suffice in the excision, as the division of the ligamentum patellæ, and removal of the patella, effectually paralyzed the extensor muscles on the front of the thigh.

I need not detain the Society by relating the case in full. The patient was a girl fifteen years old, suffering from advanced disease of the joint. The operation was performed on the 10th of June, in the usual way, by a semilunar incision from condyle to condyle, the straps of the extension apparatus having been applied to the leg before the operation. The wound was treated antiseptically, and then Mr Spence's box splint was applied to prevent lateral motion, the outer lathe extending from the trochanter to the outer malleolus, the inner one from the fork to the inner malleolus. The limb was then laid on a M'Intyre splint without the foot-piece, which acted as a posterior splint.

After the patient was placed in bed, a weight of four pounds was applied to the limb, with orders gradually to increase it till all starting of the limb had subsided.

During the next 48 hours the weight was increased to 7½ lbs., and then the patient was perfectly comfortable and slept soundly, having no starting of the limb when dropping off to sleep. On the third day, the M'Intyre splint got displaced, and as it seemed to interfere with the comfort of the patient, the limb not lying firmly on the mattress, it was removed, and the limb has since lain on the mattress, the box splint fixed with slip knots, and the antiseptic dressing with a many-tailed bandage. The discharge from the wound was somewhat copious, and the dressing required to be changed daily for some days. For this purpose the limb required to be lifted; this was always effected with ease and without pain, the weight preventing jarring of the bony surfaces. The pulley should be a shifting one, so that before the limb is lifted during the dressing, the pulley can be raised so that the axis of the limb will never require to be elevated above the level of the pulley. No appreciable separation of the bony surfaces occurred. The case was complicated by the formation of a large abscess in connexion with the lower end of the femur, necessitating more frequent dressing, and for some time a daily elevation of the limb. The case was in this way a crucial one, testing the efficiency of the weight in preventing displacement of the bony surfaces.

On the sixteenth day the union between the bony surfaces, which had remained throughout in excellent position, was considerable. On the twenty-first day, the union was such that the limb could be raised by the foot without the least motion at the seat of the operation. Six weeks have now elapsed since the operation. The wound is firmly healed, except at the outer corner. The abscess is not yet closed, discharging at each dressing (at intervals of three days) a small quantity of pus. The patient can now rotate the limb outwards and inwards without the least movement at the knee-joint. I hope to be able at next dressing to apply a permanent apparatus of plaster-of-Paris. The weight will be kept on until the knee is osseously firm.

The advantages to be expected by the use of extension apparatus in excision, are the same as follow its use in fracture; complete rest of the injured part encourages osseous union in fracture; the same result is theoretically to be expected in excision.

The case now recorded seems to show that this method of after-treatment may be useful in practice.

I beg to recommend a further trial of extension in cases of excision of the knee—

1. On account of the ease with which suitable dressings can be applied.
2. When the limb is lifted it does away with all jarring of the surfaces and starting of the limb.
3. The action of the muscles is neutralized, and there is necessarily no gliding of the cut surfaces on one another.
4. It does not interfere in any way with non-union of the bones at the seat of operation; it rather seems to encourage early union by steadying the limb, the constant dead pull of the weight neutralizing all muscular action, and necessarily all movement.

ARTICLE VI.—*The Toxical Properties of Lolium Temulentum and Lolium Linicola.* By GEORGE FLEMING, M.R.C.V.S., F.R.G.S., Royal Engineers.

(*Continued from page* 243.)

THE bovine species appeared to be as little susceptible as the porcine when the poison was administered by the digestive organs. But a cow into whose jugular there was at one time injected the watery product of 2 kilogrammes of seed, and at another time that from 2 kilogrammes 500 grammes, was on each occasion seized with general tremblings; the eyes became lachrymose, the membrana nictitans was somewhat protruded, and the pupils were dilated; while the heart's beats were very irregular, and increased to 84, and even to 120 per minute. But these symptoms soon subsided, and in six hours after the experiment the animal appeared to be quite recovered.

Sheep are more amenable to the action of *Lolium temulentum.* The green oil, not freed from its yellow ingredient, when given to them by the mouth, induces drowsiness, tremblings, marked difficulty in progression, and sometimes inability to stand. There is also grinding of the teeth, increased circulation, refusal of food, and cessation of rumination. What was most remarkable in the experiments upon sheep, however, was the delay that occurred in the appearance of these symptoms, they not manifesting themselves immediately, or until after rumination; they then subsided, but only to reappear the following day, and did not altogether vanish until a more or less long interval had elapsed. This apparent delay in the development of the symptoms, their suspension, and their reproduction, is to be explained by the peculiar organization of ruminants. The oil could not be absorbed until it had passed directly, or through rumination, into the fourth compartment of the stomach. When the symptoms appeared on the first day, as occurred in one experiment, it was due to a portion of the poison having been absorbed by penetrating directly to this compartment. Those symptoms, which became manifest at a later period, and after rumination had reappeared, were owing to the absorption of the active principle, which, having fallen into the rumen, was subsequently carried by rumination into the other portions of the digestive canal.

The watery extract of lolium has much less effect upon sheep than the yellow matter, though it nevertheless produces at first a little agitation, followed by prostration and drowsiness. These symptoms are, however, of short duration; they may even be altogether absent when the aqueous solution is administered by the mouth, and the sheep are robust and adult. But it is not so when this product is injected into the veins. One of the animals experimented upon by Baillet and Filhol succumbed, and death was almost instantaneous. Only a few violent beats of the heart were heard, and these abruptly ceased; the creature gave a few moans, and then expired without convulsions. At the autopsy no lesions were discovered, nor anything which would indicate that air had obtained admission to the vein during the injection.

A second sheep, nearly five years old, survived the injection of the watery extract derived from 500 grammes of grain. The beats of its heart were extremely violent immediately after the injection, and the respiration was hurried beyond measure; restlessness soon became manifest, the pupils were excessively dilated, salivation was abundant, the limbs were very rigid, progression could scarcely be effected, and marked tremblings ensued. All these symptoms, notwithstanding their violence, soon subsided, and after an interval of somnolescence, the duration of which was a little more than two hours, the sheep began to eat, and evinced no further disturbance.

With the rabbit, the oil, unseparated from its yellow constituent, has some slight influence if a very large dose be given; and even then the symptoms do not become developed until it has been administered nearly an hour. Then ensue general tremblings, contraction and extension of the body, and the refusal of food. These indications soon vanish. The watery extract is, on the contrary, promptly fatal. The rabbit is at first affected with well-marked muscular prostration; it huddles itself together, and allows its head to fall on the ground; then it tumbles over in convulsions. Sometimes it attempts to rise, but it is only to roll over again. Towards the last a general tremor is perceived, and the creature expires. There is nothing particular in the lesions observed. Traces of irritation are always found in the stomach and intestines; the vessels are distended with dark blood, and there is congestion of the nerve-centres, though no marked apoplectic foci.

It would appear that the seed of *Lolium temulentum* which fowls take with their food is inoffensive. This arises, no doubt, from their being unable to ingest a sufficient quantity in a day; and it has been remarked that the gallinaceæ will consume such grain for several days without their health being disturbed. Baillet and Filhol fed a cock on the seeds of *Lolium temulentum* for fifteen days, during which time it had ingested no less than 1464 grammes, and yet it remained quite well; and the products obtained from the grain have to be given in enormous doses to produce any noticeable effect. In order to destroy a fowl, it was found necessary to give it in one day all the oil extracted by ether from 3400 grammes of grain, and only a little drowsiness and diarrhœa was observed with other birds which had received the watery extract in doses representing from 125 to 500 grammes of seeds. With ducks the results were the same.

After having demonstrated that there exist in *Lolium temulentum* two distinct active principles, whose action on the domesticated animals they have so carefully studied, Baillet and Filhol compare the results obtained from their experiments. Amongst the animals so experimented upon, the carnivora appear to suffer most acutely, both from the ingestion of the watery extract as well as the oil containing the yellow matter. With other species than that of the dog and cat, only one of the two principles acts with some degree of energy. Thus, the eminently active principle, so far as the equine and ovine species are concerned, is the yellow matter which the oil contains. For the rabbit, on the contrary, it is the principle soluble in water; while for the pig, neither of these agents have any perceptible action; and with regard to poultry, the yellow matter in very large doses is a poison, but for ducks it is less poisonous than the aqueous solution, which by itself does not determine any serious derangement.

The species experimented upon being widely dissimilar, it is not to be wondered at that the action of each of these active principles should not be identical in all, so far as the symptoms go, and that the differences vary with the species; though, notwithstanding these differences, there are yet among the symptoms produced by each agent some which may be designated characteristic and distinguishable in every animal, no matter to what species it may belong. For instance, after the administration of the oil extracted by the ether, there are witnessed continuous tremblings and tetanic rigidity of the limbs in the horse, sheep, rabbit, fowl, and sparrow, as well as the carnivora; and the rabbit is, together with the dog and cat, seized with a kind of paralysis, which renders impossible, or at least difficult, the contraction of certain muscles, when these creatures have received the watery solution.

The difference in the action of the two principles of *Lolium temulentum* would appear not to consist essentially in the mode as to which are manifested externally the sufferings the victims endure, but rather to depend upon the aptitude which the economy of certain species possess of resisting more or less the influence of one or other of these agents, when the creatures do not enjoy the remarkable privilege of being insusceptible to the pernicious effects of both.

The unequal intensity of the effects observed on creatures belonging to species widely apart, cannot be ascribed to a variation in the proportions of the active principles in preparations of the same kind, for the analyses of the experimenters have demonstrated that these preparations are invariable in their composition; and it is also stated that they have often experimented upon carnivores and herbivores with the compounds from the same flask. This remarkable fact must, then, be ascribed to the difference in organization of the animals subjected to the experiments. In relation to this, however, it is important to take into account the rapidity with which absorption takes place in the carnivora and herbivora, and the integrity of, or alteration in, the oil or watery extract at the moment when absorption occurs.

With the carnivora, the stomach and intestines are small, when compared with the size of the animals, and food does not usually collect in them in anything like considerable masses; so that it is sufficient to keep them fasting for a few hours to be assured that these organs are nearly if not quite empty. Absorption of the active principles is also so rapid, that in every instance in which the aqueous product was administered to dogs and cats, the membrana nictitans was advanced before the eyes in 5, 15, 20, or 25 minutes afterwards; and this was quickly followed by muscular prostration, and the other disturbances already mentioned as produced by this preparation.

The symptoms induced by the yellow matter have not appeared so quickly, it is true; but it has nevertheless been noted that the tremblings often commence within half an hour, and even sooner in some cases.

The immense gastric apparatus of the herbivora, and the great quantity of aliment it always contains, militates against the rapid absorption of the poisons which may become mixed with the food, and in this way be removed from the absorbing surface, and even altered while so mixed. This might tend to explain why the herbivora are almost proof against the action of *Lolium temulentum*. But the injections made into the veins of the horse, pig, cow, sheep, and dog, show that if these causes cannot be considered as absolutely without influence on the results obtained by Baillet and Filhol, they are at least far from having the importance that might be accorded them, at least with regard to the principle soluble in water. The nervous system of herbivores, in fact, appears to be so organized that it is less easily affected than that of the carnivora. This would seem to be proved by experiments, in which the watery extract derived from 120 grammes of lolium injected into the jugular killed a large spaniel in a few minutes; but the same product, in a dose representing two kilogrammes of grain, injected into the jugular of a horse, had scarcely any action; and if some disturbance was produced in a young pig, a cow, and a sheep, after injecting into their veins the watery solution in doses representing 400 grammes, two kilogrammes, 250 grammes, and 500 grammes of seed, it must be stated that the symptoms were not at all severe, and the life of the animals was never seriously compromised. Two herbivores only—a sheep and a horse—succumbed after the injection of a certain quantity of the aqueous extract into the jugular vein. But to attain this result the doses have to be increased so enormously, that it entirely confirms what has been said with regard to the privilege the nervous system of herbivores possesses of being almost exempt from the action of the active principle of lolium which is soluble in water. In fact, the sheep died in a few minutes after the injection of the watery solution derived from a kilogramme of the grain; but this quantity is eight times more than is necessary to kill a large dog. This view is still further confirmed by what was observed with regard to the horse; for the dose injected, having regard to the difference in size of the animals, was still more considerable, as it represented four kilogrammes of grain, and was consequently thirty-three times greater than that injected into the jugular of the dog already alluded to. And, notwithstanding this immense quantity, the horse resisted its influence for three days: so powerful is the resistance of the economy of herbivores to the action of this toxical agent.

Thus, with the exception of the two rabbits which had received doses relatively enormous of the aqueous product, and succumbed, all the herbivores experimented upon by Baillet and Filhol, and which received this preparation of lolium by the digestive organs, were scarcely affected; while the majority of those which had received it by injection into the jugular vein have only been affected in a somewhat slight manner for a short time.

The active principle of lolium which is soluble in water, is not very different, then, from the other narcotic substances with regard to the intensity of its action on the nervous system of herbivores. Every veterinary surgeon well knows that opium, belladonna, and the other poisonous *Solanaceæ*, which act with as much energy on the carnivora as on man himself, have only a feeble action on the herbivora, and that, in order to obtain marked effects, it is necessary to give the latter much larger quantities than if we only took into account their difference in size from the other domesticated animals.

This fact would, therefore, appear to establish another analogy between the active principle of lolium soluble in water, and the narcotico-acrid agents employed in medicine. The same analogy does not seem to exist with regard to the yellow matter soluble in ether; for the intensity of the symptoms it produces varies to some extent with each species of animals, without its being possible to arrange these into two distinct groups—carnivora and herbivora—with respect to its action. To leave no doubt as to the truth of this, it is sufficient to remark that the green oil has no action on the pig, on the cow, nor on the duck; that it causes the manifestation of somewhat marked symptoms in lambs, rabbits, and solipeds; that it has even destroyed a mare without its being necessary to increase the dose very much; that it has killed a fowl and a sparrow, but only when given in an excessive dose, representing 3400 grammes of grain for the first, and 50 grammes for the second; and, finally, that though it caused much suffering to carnivores, yet it only killed a very small number of them. It must, then, be acknowledged that the experiments of Baillet and Filhol, and the observations of the majority of other authorities who had preceded them, demonstrate that *Lolium temulentum* is an energetic poison for mankind and various species of the domesticated animals. Receiving this as an incontestable fact, the two first-named gentlemen undertook a series of researches with the view of discovering an antidote for it, but without any satisfactory result. Against the principle soluble in water, and which is the most dangerous, they tried large doses of *coffee*, which is usually a good antidote in poisoning by opiates; *nux vomica*, which induces in dogs symptoms the opposite of those produced by the watery solution of lolium; *iodine*, dissolved in water, with the assistance of iodide of potassium, which has been recommended as an antidote to strychnine; finally, *water sweetened with treacle*, which has been extolled by M. Gallet as one of the most efficacious remedies against the effects produced by the grain of *Lolium temulentum*.

Six dogs submitted to these experiments all died in a short time, without the least amelioration being perceived in the symptoms induced by the toxical agent. The experimenters propose at some future period to try the antidotal effects of *liquid ammonia,* which is utilized to combat the effects of ordinary intoxication.

The oil of *Lolium temulentum* rarely has a fatal action on dogs, even when administered in large doses; but Baillet and Filhol were desirous of ascertaining whether it is possible to allay the sufferings to which it gives rise in these animals. With this object they gave a dog the oil extracted from a kilogramme of the grain, and afterwards two decigrammes of *opium;* but the latter in no way arrested the effects of the yellow matter, which were produced in their ordinary intensity, and did not disappear until the following day.

Seeing that there appear to be no known means of combating the poisonous effects of *Lolium temulentum,* which has proved itself such a powerful toxical agent, these authorities recommend the greatest precautions with regard to preventing the food of man or animals being mixed in any considerable proportion with its grain. This grain is, as we have seen, often found among the wheat and rye which is to be made into bread, in the barley that is to be brewed into ale, and among the corn employed to feed horses and other animals. The first step to be taken, then, is to extirpate this plant from grain fields, or at least to reduce its frequency therein to the smallest proportions. This can be done by careful weeding, good manuring, and making sure that the grain sown does not contain the seeds of this plant. When grain contains these in undue quantity, they should be got rid of by winnowing and other means.

The herbivorous animals not being readily affected by lolium, it can only happen that they are injured when they have received the grain in large quantities, as may occur when they are fed on winnowings. They may frequently be so affected, without the cause being even guessed at.

Baillet and Filhol have been desirous of discovering the therapeutical utility of *Lolium temulentum.* Seeing that it acts more especially on the nervous system as a narcotico-acrid poison, they have imagined that it might be advantageously employed in the treatment of certain neuroses; but their researches in this direction have not been carried very far. They have tried the two active principles, however, in different cases of tetanus in solipeds, and in chorea in the canine species, but without success. The green oil still containing its yellow matter, and the aqueous extract, have proved perfectly impotent in two cases of tetanus—the malady running its course without the slightest amelioration; indeed, in one of these animals—an ass—it appeared that some of the symptoms due to the presence of the aqueous solution were added to those of the disease, and thus hastened the death of the creature.

With regard to the dogs affected with chorea, those experimented upon were four in number. These received the oil in small doses every day for a variable period. One, which was very ill, died early. Another was not at all benefited by the drug; and the other two appeared to be somewhat improved, but this improvement was not maintained for any length of time after cessation of the treatment. Dr Cazin, however, subsequently tried the effects of the aqueous solution on a child suffering from chorea, and with satisfactory results.

Having been so successful in demonstrating the toxical action of *Lolium temulentum,* Baillet and Filhol turned their attention to allied species, in order to discover if they also were to any degree possessed of the same properties. With this object experiments were made with *Lolium linicola, Lolium Italicum,* and *Lolium perenne.*

The first of these grows exclusively with flax, and its grain is consequently found among linseed. This grain is scarcely one-third or one-fourth the size of that of *Lolium temulentum,* which it somewhat resembles in shape; it is easily distinguished from the linseed. The second is well known as "Italian ryegrass;" and the third is the ordinary ryegrass, one of our best forage plants. There is little difference in the appearance of the seeds of these two kinds; and the three in chemical composition do not vary from *Lolium temulentum* in the principles they contain, but only in the proportion of these. The three contain the yellow and extractive matter, and if these two substances were the active principles isolated in a pure condition, the three would produce on the animal economy almost the same effects as *Lolium temulentum.* This is not the case, however; for while *Lolium linicoli* is superior in activity to *Lolium temulentum, Lolium perenne* only produces trifling effects by its extractive matter, and *Lolium Italicum* is almost inoffensive. This is due to the fact, as has been already said, that the non-isolated active principles contained in the yellow and the extractive matter are associated with other substances, the proportions of which vary according to the species. Further researches will be necessary in order to isolate these active principles, which, judging by the effects produced on carnivora, should exist to a larger amount in *Lolium linicola* than in *Lolium temulentum.*

From the experiments carried out in this direction by Baillet and Filhol, it is evident that the green oil containing the yellow matter, and the extract obtained from the former, has the power of acting most energetically on the animal economy. Both of these substances induce symptoms identical with those which the analogous preparations procured from *Lolium temulentum* give rise to. The green oil, for instance, causes, in the dog as well as in the cat, salivation, vomiting, general tremblings, more or less violent convulsive movements, a very marked tetanic rigidity of the neck, limbs, and tail, and an evident exaltation of the general sensibility, succeeded by somnolescence.

The action of the extractive matter on these animals is also indicated by salivation, vomiting, and convulsive movements; but the tremblings are slight, and the muscular spasms are never witnessed. These symptoms are succeeded by such a degree of muscular prostration, that the animal is utterly incapable of standing, or getting up when it falls. The joints flex under it, and it tumbles down like an inert mass. This is always preceded by protrusion of the membrana nictitans, which almost entirely covers the front of the eye. Finally, under the influence of the extractive matter, sensibility is blunted, and the animal, when it does not perish in a short time, falls into a somnolescent condition.

In some experiments, it was noted that the green oil obtained from 500 grammes of *Lolium linicola* killed a somewhat large dog after four days' suffering. In a dose representing 400 grammes of grain, it rendered an adult cat very ill, though death did not ensue.

To another dog was given the extractive matter from 500 grammes of seed, and this creature succumbed in sixty-five minutes. A small spaniel died in two hours and ten minutes after receiving the same product obtained from 225 grammes. But an adult cat resisted a similar quantity, and completely recovered after a day and a half's suffering and a night's sleep. This extractive matter, like that of *Lolium temulentum*, leaves its traces in the carcase in the form of congestion of the nerve-centres and liver, and alteration of the blood, which is of a very dark hue in every part of the body. In the majority of instances, there are indications of irritation in the digestive canal.

The symptoms and lesions above described too closely resemble those produced by the yellow and extractive matters of *Lolium temulentum* to allow of any doubt as to the presence in *Lolium linicola* of the same active principles. For this reason, it would, doubtless, be well to guard against any great proportion of the seed of *Lolium linicola* being allowed amongst the linseed kept in pharmacies, and especially if it is likely to be used for beverages, as the symptoms the extractive matter might induce would be calculated to cause alarm, and perhaps annul the effects of the treatment patients were undergoing.

The *Lolium Italicum* and *Lolium perenne* also contain the yellow and extractive matters, but, strange to note, their seed is far from being as dangerous as that of *Lolium temulentum* and *Lolium linicola*. The oil and extractive matter obtained from *Lolium Italicum* given in large doses to dogs have proved almost inert; and it has been the same with the extractive matter of *Lolium perenne*. But the oil from the grain of the latter species is not absolutely inactive. By giving to dogs doses representing 700 grammes, and one and two kilogrammes of seed, there have been produced symptoms perfectly identical with those occurring from the administration of the same substance prepared from the grain of *Lolium temulentum* and *linicola*.

From these experiments, it would appear to be demonstrated that in the grain of Italian ryegrass there is but little, if anything, of the active principles which endow *Lolium temulentum* with its toxical properties, and that those of the ryegrass contain only a very small quantity of the active principle soluble in ether and associated with cholesterine in the yellow matter.

The active principles of *Lolium temulentum* and *linicola* are contained exclusively in the *mature seeds*. Baillet and Filhol have assured themselves by experiments that the green, or even the dried, plant of the former never produces the slightest effect upon herbivores. With regard to the stalk and leaves of the other species of this order, every farmer knows that they form the very best forage plants; they have never been recognised as injurious to animals.

ARTICLE VII.—*On the Uterine Souffle and the Fœtal Heart.* By JAMES CUMMING, M.D., F.R.C.P. Ed., Physician to the New Town Dispensary, Extra Physician to the Royal Hospital for Sick Children, Edinburgh.

(*Continued from page* 234.)

PART II.—ON THE FŒTAL HEART.

History of its Discovery.—Rather more than half a century ago (in 1818), M. Mayor, an able surgeon practising in Geneva, was the first, on applying his ear to the abdomen of a patient far advanced in pregnancy, to observe, and subsequently record, that all-important discovery, the pulsations of the fœtal heart. All that I can ascertain regarding his observations, is from the minutes of a meeting of the Royal Academy of Science of Paris, held on the 29th June 1818, when a M. Percy, reading a report on the work of Dr Lenuce,[1] upon the advantages of Ausculation in examining Diseases of the Lungs, alludes in a footnote to Mayor's discovery.

I quote it in full: "Cette observation nous en rappelle une de M. Mayor, habile chirurgien de Genève, qui nous a semblé très-intéressante dans ses rapports avec l'art des accouchemens, et avec la médecine légale. Il a découvert qu'on peut reconnoître *avec certitude* si un enfant arrivé à-peu-près à terme, est vivant ou non, en appliquant l'oreille sur la ventre de la mère; si l'enfant est vivant, on entend fort bien les battemens de son cœur, et on les distingue facilement de ceux du pouls de la mère."

It seems probable that, when studying the movements of the fœtus *in utero,* he had accidentally heard the pulsations. However, this is a mere conjecture. Mayor seems to have remained satisfied with his discovery, giving it no further attention, at all events not publishing more elaborate investigations.

---

[1] Bibliothèque Universelle, vol. ix.

In 1821, M. J. A. Lejumeau de Kergaradec[1] also independently discovered the sounds of the fœtal heart (reminding one of the independent and simultaneous discovery of the yeast plant in 1836 by Cagniard-Latour and Schwann). Although priority is given, and very properly so, to Mayor, still full credit is due to Kergaradec, who, besides pursuing his investigations further, made another great discovery, that of the uterine souffle. His discovery, like Mayor's, appears not to have been the result of inference, but simply an accident. The following is an extract from his pamphlet:—In the case of a Madame L., a young lady advanced in pregnancy, he resolved by the aid of the stethoscope to try if he could hear the wave (flot) resulting from the agitation of the amniotic fluid. One day while investigating as to the movements of the fœtus, he was suddenly struck with a bruit, which he had never hitherto remarked. On counting these pulsations they varied from 143 to 148, while the pulse of the mother at the same time was only 70 per minute. He at once came to the conclusion that the former sounds were produced by the contractions of the fœtal heart. On this occasion he heard them on the left side, in what, he adds, accoucheurs term a first position.

During the fifteen days of his observations on this patient, the maternal pulse varied from 54 to 72, while the fœtal beats ranged from 123 to 160. On one occasion the pulsations were so fast that he could not count them, while the mother's pulse remained normal; so he came to another important conclusion, *that the latter had no influence on the former.*

He further suggested that the health or sickness of the child might be indicated by the strength and frequency of the beats; also that the presence of twins and triplets might be diagnosed; that the pulsations may prove a valuable addition in the diagnosis of extrauterine pregnancy. He also advocated mediate auscultation.

The above is a brief epitome of the remarks, observations, and deductions contained in his paper, which, I need scarcely observe, will well repay perusal. It seems astonishing how, unaided, he should have discovered and suggested so much on this, the only true *sign* of pregnancy.

Shortly after he had delivered a lecture on what he thought was his discovery, M. Fodéré, in an article in tome lvii. of the *Dictionnaire des Sciences Médicales,* drew his attention to the fact that M. Mayor, an able surgeon of Geneva, had preceded him, and had recorded his researches in the *Bibliothèque Universelle.* To this he replies as follows, at once giving the precedence to M. Mayor, at the same time vindicating his rights as to having prosecuted the subject further. I cannot do better than transcribe his own words *verbatim*:—

---

[1] Mémoire sur l'Auscultation appliquée à l'Etude de la Grossesse, etc., par M. J. A. Lejumeau de Kergaradec, 1822.

"Je ne chercherai pas à revendiquer cette découverte puisque, bien que je l'ignorasse complétement, l'observation de M. Mayor est effectivement antérieure aux miennes. Mais ce chirurgien n'a rien entendu avant la fin de la grossesse; et je suis certain qu'il est possible de percevoir bien plus-tôt le bruit des contractions du cœur du fœtus. Il ne parle pas non plus des pulsations simples avec souffle, et celles-ci m'ont paru dans deux circonstances tellement sensibles à cinq mois, que je ne doute pas qu'il ne soit possible de les distinguer avant cette époque" (and quotes a case where he heard the pulsations at 4½ months). Kergaradec was truly a scientific obstetrician.

Since that time numerous observers have written on this subject. Among the more prominent was Evory Kennedy[1] of Dublin, whom I have already had occasion to quote in connexion with the uterine souffle. He says, "that in the new-born child, the sounds (heart) are much diffused, and càn be distinctly heard at the right scapula, all over the chest, on pressing the arms against the chest, and auscultating the arms, and sometimes down the back as far as the loins and buttocks." Also that the fœtal heart is much larger in proportion, and the chambers of greater capacity, in relation to the thickness of their walls, than the adult heart, showing that, notwithstanding abnormal thickening of the abdominal parietes, and excess in amount of the liquor amnii, the sounds can be heard with fair distinctness. He says that there is a sensible influence or sympathy between the maternal and fœtal circulations. I hope to explain further on that this is quite erroneous. He was the first to record the pulsations caused by the funis, and mentions that they can be heard if a portion of it intervene between the anterior wall of the uterus and some prominent part of the child's body. The younger Naegele has also made mention of this sound.

Characters of the Fœtal Heart.—A double beat, not synchronous with the maternal pulse, of varying rapidity, regularity, and distinctness, heard at points in the abdomen, depending upon the presentation and position of the fœtus *in utero,* and its degree of intensity depending on the strength, size, and sex, and upon obstructive media interposed between it and the stethoscope.

It has been likened to the ticking of a watch under a pillow. But after the ear has become familiar to it, it is a sound *sui generis.* I have frequently been struck, when auscultating very young children for some chest affection, posteriorly between the inferior borders of the scapulæ, with the striking resemblance between the heart sounds heard there, and the fœtal pulsations, more especially when the pulse is as high as 110–120.

Frankenhauser,[2] who has devoted particular attention to this subject, states that the lungs do not interfere with the conduction of the fœtal beats, which may be verified by auscultating a child immediately after birth before it has breathed, when the pulsations may be heard equally distinctly posteriorly as anteriorly. But as soon as it has taken a full inspiration, then the sounds become less distinct posteriorly.

---

[1] Observations on Obstetric Auscultation.

[2] Monatsschrift für Geburtskunde und Frauenkrankheiten. Berlin, 1859.

One cannot help wondering why this discovery was not made before (a remark not uncommon in connexion with investigations generally), as, for instance, when a child is apparently still-born, and has not breathed, the medical attendant applies his ear to the chest, and hears the heart distinctly, although feeble; he then proceeds with means for reviving the child, every now and again noting the heart, and in many cases several minutes elapse before the child gasps, while all the time circulation is going on. A natural inference might have occurred to the observer: Seeing that the heart sounds are so distinct at birth, may they not be heard with a less degree of intensity when *in utero?*

Dubois states that the age of the fœtus causes no difference in the frequency of the pulsations—that they are the same between the fourth and fifth months as at the full time.

Kilian[1] says the sounds may be as rapid as up to 190, and even so fast that they cannot be counted, and that the most powerful bodily exertion on the mother's part causes no appreciable acceleration in their rapidity.

Hohl[2] agrees with Kilian, adding that the uterine contractions have a manifest influence on the sounds.

Depaul,[3] in alluding to obstetric auscultation, says it is probable that Mayor made his discovery accidentally, when making researches in connexion with the fœtal movements.

Reasons why Mediate is to be preferred to Immediate Auscultation.—The position required when applying the ear directly to the abdomen is uncomfortable and constrained, more especially when the auscultator has occasion to examine the side further from him. Then, again, the exact site of the pulsations cannot be so definitely localized; also, it is disadvantageous in cases of early pregnancy, when considerable pressure is needed. It is indelicate. Therefore the stethoscope should invariably be used, when at hand.

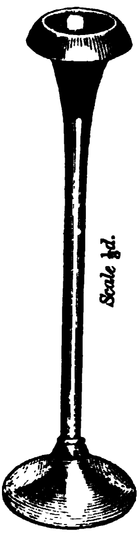
The limbs should be slightly drawn up to relax the abdominal muscles, the patient lying at perfect ease. The dress should be stretched at the point where the stethoscope is to be applied, as the sounds might be obscured by the grating of the instrument; or what, perhaps, is better, a large soft cotton pocket-handkerchief laid lightly over the abdomen. In cases where there is any doubt or difficulty, the stethoscope should be applied next the skin, merely involving the exposure of an area of from two to three inches square. The auscultator should, when possible, be in the sitting posture, and should at the first examination take the maternal pulse, to avoid all risk of mistake. Perfect stillness should reign in the chamber, and nothing be allowed to distract his attention. The pulsations ought to be counted several times, and the mean average noted.

---

[1] Die Operative Geburshülfe.

[2] Die Geburtshülfliche Exploration. 1833.

[3] Traité d'Auscultation Obstétricale. Paris, 1847.



During the earlier months of pregnancy (between the fourth and sixth), the stethoscope should be planted in the mesial line of the abdomen, midway between the umbilicus and the symphysis pubis (if anything nearer the umbilicus), and some pressure exerted.

When using my ordinary stethoscope, I found that it often caused considerable uneasiness to the patient, leaving a deep ring (resembling the indentation produced by pressing the thumbs firmly along the tibia, in cases of œdema), also causing active movements on the part of the fœtus; so I had a stethoscope[1] constructed, with the distal end rounded off, and lengthened a quarter of an inch, and rather more tubular than in ordinary instruments, as I think it thus conducts sounds better, and covers a larger area. I can claim no other advantages for it.

Sounds heard in the Abdomen.—1. Gurgling noises produced in the intestines (the " borborygmes " of Kergaradec).

2. The uterine and funic souffles.

3. The fœtal heart and funic pulsations.

4. The tearing sounds produced by the separation of the placenta.

5. The noises produced by the gases in the decomposition of a dead fœtus.

6. Hohl drew attention to a short dry bruit, which he attributed to the shaking of the amniotic fluid, caused by the quick movements of the fœtus.

7. Stoltz, of Strasburg, described a sound he had heard when the child was dead, resulting, as he thought, from decomposition of the liquor amnii—" un bruissement sourd et irregulier, comme un bruit."

8. H. F. Naegele[2] showed, that by auscultation, the movements of the fœtus could be detected earlier than hy palpation.

Nauche,[3] realizing an idea of Maigrier, invented the metroscope, an instrument consisting of a curved tube of wood, which could be applied directly to the cervix. The advantages claimed were, that the movements of the child could be heard during the first three months of pregnancy, when the mother herself was scarcely aware of them.

At what period of pregnancy is the fœtal heart first heard?

---

[1] See diagram.

[2] Die Geburtshülfliche Auscultation.

[3] Maladies propre aux Femmes. Des Maladies de l'Utérus.

It cannot as a rule be heard with any certainty till towards the end of the fourth or the beginning of the fifth month of pregnancy. Depaul[1] is said to have heard it as early as the eleventh week. Anderson, of Glasgow, heard it at the fourteenth week; Frankenhauser, during the fifth month, which I believe, on the average, is the correct time.

The following table contains the dates, with the names of some authors who have recorded the results of their observations:—

During the eleventh week.—Depaul.
During the fourteenth week.—Anderson.[2]
At the end of the fourth month.—Hohl,[3] Kennedy, and Velpeau.[4]
During the eighteenth week.—Kergaradec, Cazeau,[5] and Naegele.
During the fifth month.—Laennec, Montgomery,[6] and Frankenhauser.

Where is the fœtal heart heard?

After the seventh month of pregnancy, when the position of the fœtus becomes fixed, the site of the fœtal heart is localized according to the presentation and position.

Where the left side of the back of the fœtus is approximated to the uterine (abdominal) parietes, there the sounds of the fœtal heart will be heard most clearly and most distinctly. This is explained as follows:—1. The extremities of the fœtus keep the anterior part of of the thorax at a distance from the uterine parietes; 2. The interposition of the liquor amnii. And now, in order to illustrate the above remark, let us glance briefly over some of the ordinary presentations and positions.

In the ordinary head presentation of the fœtus *in utero* (that is, the head depressed on the chest, the legs doubled up on the abdomen, the arms folded across the chest, the whole body bent forwards, and with the back towards one or other side of the abdomen), the pulsations are heard at one or other side of the abdomen.

In the first position,[7] the head lying in the right oblique diameter of the pelvis (occipito-anterior), and the back towards the left side of the mother, the fœtal heart will be heard most distinctly between the umbilicus and the left anterior superior spine of the ilium. In the second position,[8] the head lying in the left oblique diameter (occipito-anterior), and the back turned to the right side of the mother, the fœtal pulsations are heard between the umbilicus and the right anterior superior spine. It has been said that they can be heard also on the left side, but this must be

---

[1] Traité d'Auscultation Obstétricale.

[2] The London and Edinburgh Monthly Journal of Medical Science, vol. iv.

[3] Die Geburtshülfliche Exploration. [4] Traité des Accouchements.

[5] Traité de l'Art des Accouchements.

[6] Signs and Symptoms of Pregnancy.

[7] Plate I. Fig. 1, from Siebold. Abbildungen aus dem Gessammtgebiete der Theoretisch-praktischen Geburtshülfe.

[8] See Plate I. Fig. 2.

Edinburgh Medical Journal.

Plate I.

Fig. 1.

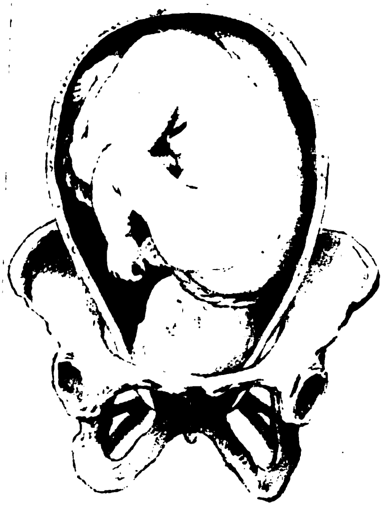


Fig. 2.

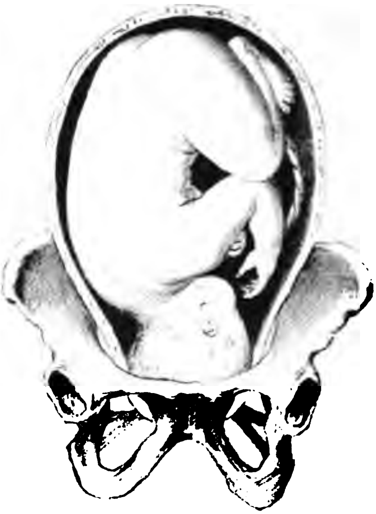


Fig. 3.

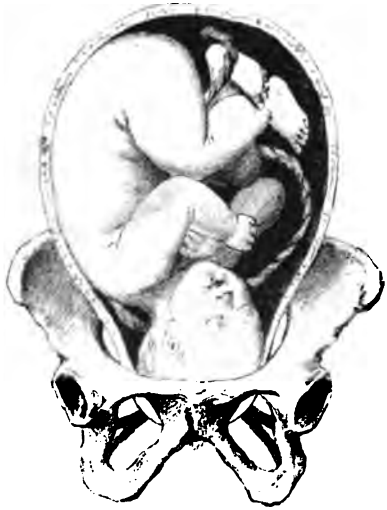
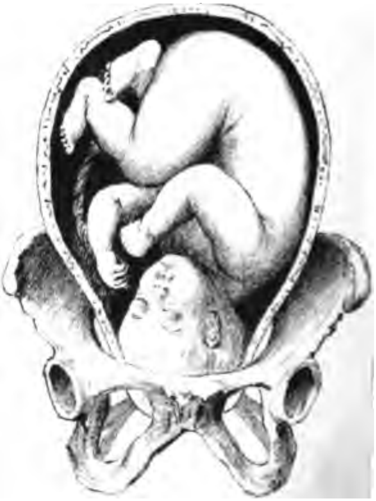


Fig. 4.



J. Bartholomew, Edin.r

Fig. 1.

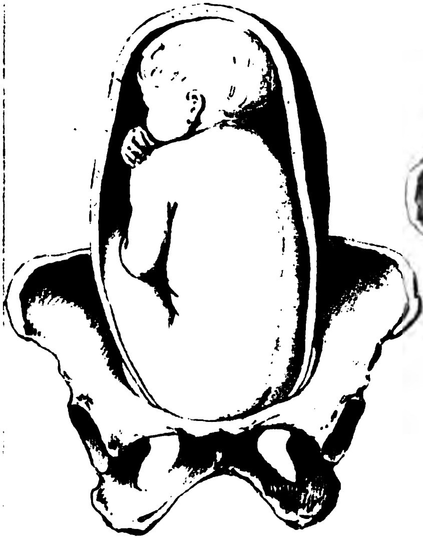


Fig. 2.

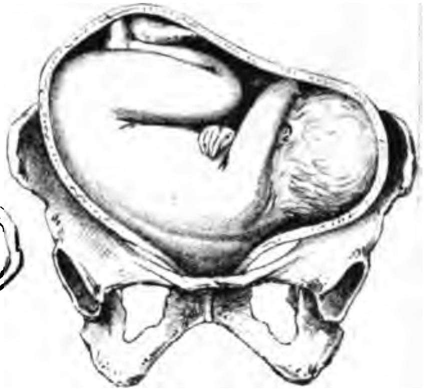
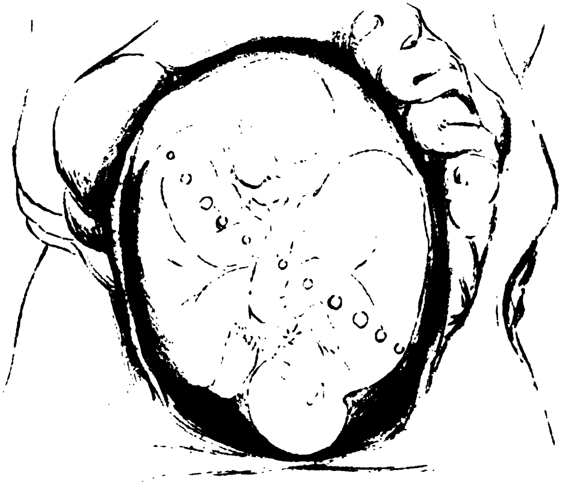


Fig. 3.



J. Bartholomew

only after the escape of the liquor amnii and towards the end of the second stage, when the posterior fontanelle is in the mesial line, and then the heart may be heard in the linea alba.

In the third position,[1] that is, the head lying in the right oblique diameter (occipito-posterior), and the back directed towards the mother's loins, the fœtal heart will be heard loudest on the same level with the second position, but posteriorly.

And again, in the fourth position,[2] the head lying in the left oblique diameter (occipito-posterior), the pulsations are heard on the same level as in the first, but more posteriorly.

Rotations from the third to the second, and from the fourth into the first positions, may thus be followed.

In breech presentations, of which there are four, the heart is heard most distinctly in the dorso-anterior pelvic presentations (two). Thus, in the first position,[3] where the transverse diameter of the breech occupies the left oblique diameter of the pelvis, its sacrum towards the left acetabulum, the left trochanter towards the right acetabulum, and the right trochanter turned to the left sacro-iliac synchondrosis, the sounds of the fœtal heart will be heard almost in the median line, at the umbilicus; in the second position, to the right and rather posteriorly.

In transverse presentations,[4] the pulsations may be heard, stated generally, in a line running across the abdomen.

In face presentations, the front of the chest is most contiguous to the uterine parietes. Consequently, in mento-pubic positions, the heart is heard anteriorly in the iliac region; and rather posteriorly, when the face lies in the mento-sacral position.

The diagnosis of twins is much facilitated by auscultation.[5] Suppose one fœtus lying in the left side, with the head presenting, and the other in the right, the breech presenting, the pulsation of the former will be heard midway between the anterior superior spine of the ilium and the umbilicus, those of the latter high up and to the right of the umbilicus. The pulsations will not, as a rule, be synchronous, and will be heard loudest at two distinct points in the abdomen, separated by very weak sounds. The diagnosis is of course much easier after the escape of the liquor amnii.

I may mention here a case in point: When examining a patient in the Edinburgh Maternity Hospital (some years ago), about three weeks before her confinement, the fœtal heart was heard beating distinctly at 120 per minute in the right groin, and again at the same time another heart, at 154, high up in the left hypochondrium. The presence of twins was diagnosed, which proved to be correct.

---

[1] See Plate I. Fig. 3.

[2] See Plate I. Fig. 4.

[3] See Plate II. Fig. 1, from Leishman.

[4] See Plate II. Fig. 2.

[5] See Plate II. Fig. 3, from Tanner.

The first child born, presenting with the head, was a male; the second a female.

Anderson[1] records a remarkable case, where there was but one maximum, and on delivery one fœtus was *dead*.

Causes interfering with Fœtal Auscultation.—Thickness of the abdominal parietes (obesity). An excess of the liquor amnii. The bladder distended. Gases in the intestines. Accumulation of fæces. A fold or folds of the intestine intervening. Contractions of the uterus. The action of the abdominal muscles. When the placenta is situated anteriorly (being a bad conductor of sound).

When the Fœtal Pulsations are heard indistinctly from the position of the Presentation.—In transverse presentations—dorso-posterior positions (two), where the back of the fœtus is directed towards the sacrum. Also in face presentations—dorso-posterior (two). In twins, those of the fœtus situated posteriorly.

We are now about to consider fœtal auscultation in, if I may so express it, a more practical point of view.

Diagnostic Value of the Fœtal Heart.—1. It enables us to determine with certainty the existence of pregnancy. 2. It is a valuable aid in the diagnosis of plural births (twins, etc.). 3. In determining the life of the fœtus (by noting the character and rapidity of the beats at varying intervals). 4. It enables us to arrive at a more correct conclusion regarding the presentation and position of the fœtus *in utero*. 5. Also regarding the sex of the fœtus. 6. As a guide in determining as to the advisability and time of interference in operations, such as forceps, turning, craniotomy, and cæsarean section. Depaul[2] says: "It is useful in protracted cases as an indication when operative interference is necessary, as when we ought to use forceps, turning, or other safe means to preserve the child's life as well as the mother's." Simpson[3] says: "In contracted pelvis, the result of auscultation would enable us to adopt turning instead of embryulcia." He further states that the mortality of male births is in the proportion of one in twenty-three, while that of females is only one in thirty-three. 7. In cases of suspected rupture of the uterus, fœtal auscultation may be of some assistance in diagnosis. Dr M'Clintock[4] quotes a case, where rupture of the uterus was suspected, but as the pulsations were heard distinctly the patient was allowed to go on, and was ultimately confined of a living child. No rupture. In another case the heart was heard loud in the left iliac region; some hours after, on the patient becoming suddenly extremely faint, another examination was made, when the child's head appeared to have receded, and no pulsation could be detected. A rupture of the uterus was diagnosed. She died thirty-one hours after, the result of the sectio verifying the diagnosis.

---

[1] The London and Edinburgh Monthly Journal of Medical Science, vol. iv.

[2] Traité d'Auscultation Obstétricale.

[3] Notes of Sir J. Y. Simpson's Lectures, 1867–68.

[4] The Dublin Quarterly Journal of Medical Science, vol. iv.

Anderson[1] of Glasgow records the following noteworthy results of his observations: He examined and heard the fœtal heart in 180 cases, but failed to hear the sounds in 12 cases. These 12 were all still-born.

Dr W. Stokes mentions several cases in which the fœtal heart had been heard distinctly several times, but two or three days previous to confinement could not be detected. In all those cases the fœtuses were born dead.

Dr F. C. Wilson, in the *American Practitioner* for December 1873, alluding to a paper of mine read before this Society in June 1870, writes: "Since the publication of that paper, I have kept accurate notes of all the cases met with in hospital and private practice, diagnosing the sex in each, failing only in nine cases out of 109." In this able and exhaustive paper, he suggests that, by diagnosing the presentation early, such as a transverse or a breech, we may change an unnatural to a natural labour, thus saving the woman much suffering. In illustration of which he quotes a case where, by fœtal auscultation (130 per minute) and external palpation, he was enabled to diagnose a transverse presentation (dorso-anterior), the left hand presenting. By external manipulation the head was pushed downwards over the brim of the pelvis, and the breech at the same time pressed upwards towards the fundus, the presentation then being cephalic and the position the first. She was delivered thirteen days after of a boy.

In cases of suspected pregnancy, the knowledge acquired by the stethoscope will render all further examination unnecessary. A lady, some years ago, consulted my father for what she stated was an abdominal tumour. On interrogation her answers did not give us the slightest idea that she herself suspected pregnancy. She had been taking large doses of iodide of potassium, and stated that she had been frequently cauterized. My father asked me to use the stethoscope, when the fœtal heart was heard on the left side, between 140 and 150 per minute, while her pulse was under 70. No further examination was required. She was confined shortly after of a girl, apparently at the full time.

The Number of Pulsations of the Fœtal Heart.—They may average from 108 per minute (Hohl) to a degree of rapidity rendering accurate counting impossible. Depaul records a case in which the pulsations were as high as 210 per minute. The following observers have written on this subject and given their averages:—Naegele, 135 per minute; Hohl, 108–175—average, 142; Dubois, 144; Carus, 130–160—average, 145; Depaul,[2] 120–160—average, 140; Frankenhauser, 120-180; Zepulder, 144–150—average, 147; Kennedy, 130–140—average, 135; Tanner,[3]

---

[1] London and Edinburgh Monthly Journal of Medical Science, vol. iv.

[2] Traité d'Auscultation Obstétricale.

[3] The Signs and Diseases of Pregnancy.

120–150—average, 135; Simpson, 130; Laennec,[1] 120–160—average, 140; Kilian,[2] 120–140—average, 130; Wilson, 110–170—average, 140; Cumming, 138.

The next point to which I wish to direct your attention is with regard to the danger to the life of the fœtus as indicated by the fœtal heart.

When the sounds, from being distinct and normal, become rapid and weak, and then can scarcely be recognised; again, when the pulsations become slower and weaker, and may cease altogether; or when they become irregular and intermittent from irritation or pressure on the brain,—we may with tolerable certainty conclude that the child's life is in danger.

Dr Hardy[3] mentions that the exhibition of ergot may in a comparatively short space of time destroy the life of the child, and quotes two cases, where one child was born dead twenty minutes, and the other twenty-five minutes, after the administration of ergot, at which time the pulsations were *loud and distinct.* In such cases the sounds should be watched at short intervals, giving us an idea when to interfere.

And now we may briefly consider the indications for instrumental interference.

Mr Adams[4] states, that in cases where it is evident the forceps will be applied with great difficulty, and knowing from auscultation that the fœtus is dead, we may apply other instruments to save the mother's parts. Then, further on, adds, that if we do not hear the heart we must not conclude that the child is dead, but that if the sounds have been once distinctly heard, and then cease to be audible, the child is dead. To this, in a letter published shortly after, Dr Johnson replies, "that the difficulty is to prove the death of the fœtus;" and adds, very properly, that in all cases when possible the forceps should be preferred to embryotomy. In 1831, M. Budson[5] read a paper before the Académie Royale de Médecine on Fœtal Auscultation, stating that if, from the character of the beats, we apprehend danger to the fœtus, then we should hasten to apply forceps. In the summer of 1872, I saw a case in the Royal Maternity Hospital, Berlin, illustrative of the above remarks. A patient had been in labour upwards of eighteen hours, and during the last two hours the fœtal heart had been several times auscultated, when it varied from 130 to 140 (clear and distinct on the left side). The pains were not very strong, but the maternal pulse was good, and there seemed no urgency for hastening delivery, as far as she was concerned. Suddenly, however, the pulsations (fœtal) became very weak and rapid. It was impossible to count them. Professor Martin, who was present, fearing the child's life was in danger, applied the forceps, and the child was in a few minutes delivered, apparently still-born. It was nearly twenty minutes before it was fairly resuscitated and breathed freely.

---

[1] De l'Auscultation Médiate.

[2] Operationslehre für Geburshelfer.

[3] Dublin Medical Journal, vol. xxvii.

[4] Dublin Medical Journal, vol. iii.

[5] Rapport à l'Académie sur une Mémoire de M. Budson.—Dubois.

(To be continued.)

ARTICLE VIII.—*Report upon Some Cases of Microcephalic Idiocy and Cretinism.* By W. W. IRELAND, M.D., Medical Superintendent of the Larbert Institution.

(Continued from page 222.)

THROUGH the kindness of a friend, we have received a copy of the *Sperimentale* of Florence,[1] containing a full account of the case of Antonia Grandoni, already mentioned in our two preceding reports on microcephalic idiocy. She died February 1872, aged 41, of pyæmia.

The examination of her body was made by five medical men; and the description of Dr Roberto Adriani occupies twenty pages of the *Sperimentale.* Her father was a boatman; her mother was a woman of small stature, who died of consumption. Before and after giving birth to Antonia she had several children, male and female, who were quite healthy in every respect. There was nothing in the family history indicating any unusual morbid tendency. Antonia was small at birth, with a small head. The fontanelles were noticed to be distinct, but were thought to contract sooner than usual, and eclamptic convulsions followed. The head, which had increased at first, soon stopped growing, and the disproportion between the size of the head and the face became marked. She was not much later than usual in beginning to walk and speak, but her intelligence was inferior to children of her age. She, however, learned in time to do easy work in the house, and to go out of doors to buy provisions. She was of a gay and sociable disposition, was fond of learning amorous poetry, and showed erotic tendencies. On getting older she took to wandering about, and might be seen dancing with grotesque movements to her own singing.

For many years she led a wandering life, an object of curiosity, of pity, or of ridicule to all. At last she was removed to the hospital where she died. There was nothing peculiar about her person saving the smallness of her stature, she being no higher than 52 inches. The statement in our last report that she was 57 inches high was a clerical error or misprint, which we did not notice till it was too late. Her weight was 30 kilogrammes. She had good sight, very quick hearing, an exquisite sense of taste

---

[1] Lo Sperimentale, Giornale Critico di Medicina e Chirurgia. Firenze, 1872, Ottobre.

Fig. 1.

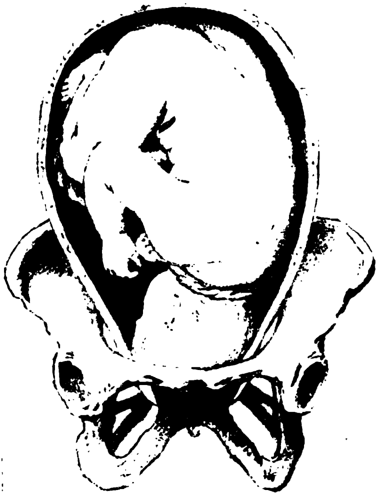


Fig. 2.

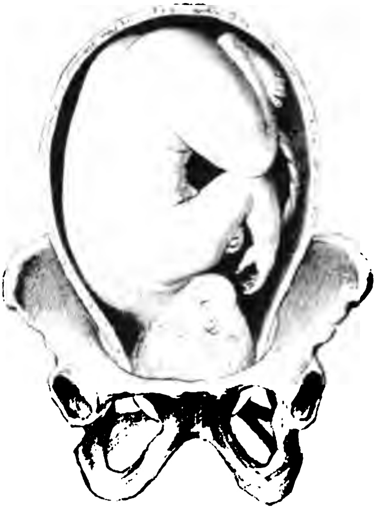


Fig. 3.

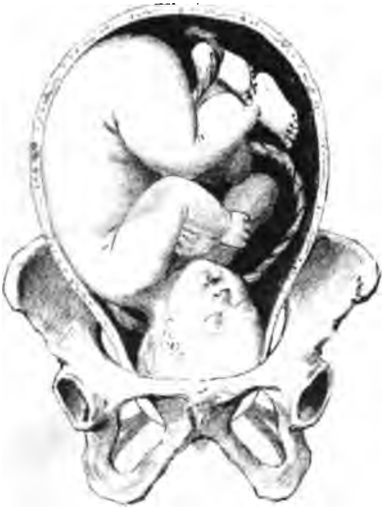
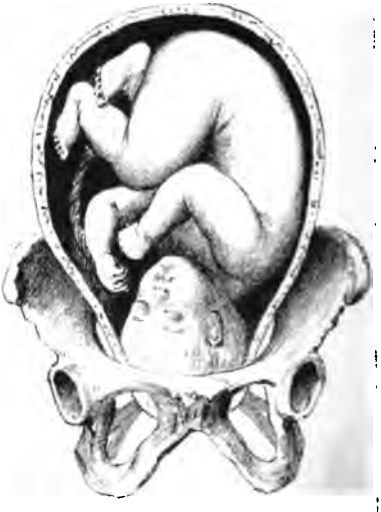


Fig. 4.



J. Bartholomew, Edin^r

Fig. 1.

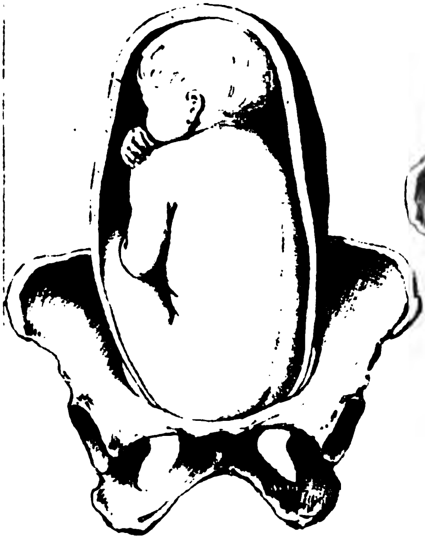


Fig. 2.

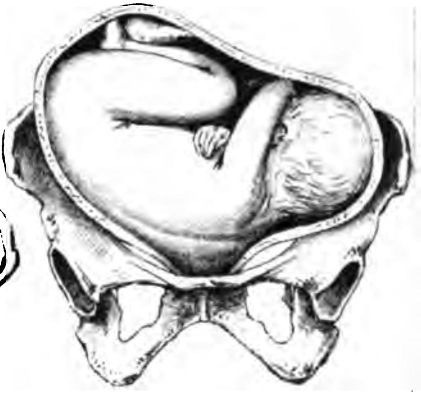
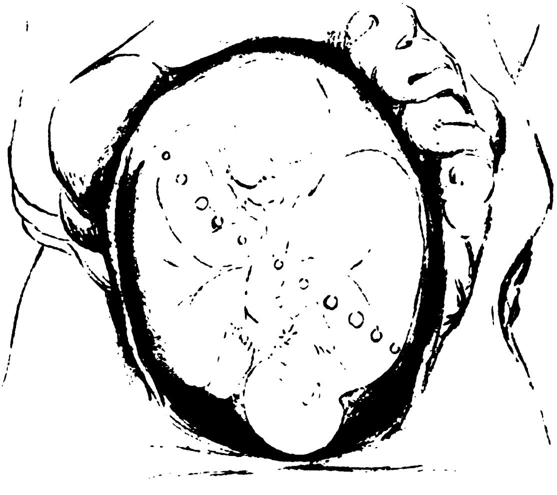


Fig. 3.



J. Bartholomew, Edi

cells appear scarcer than usual. This tissue, which was thought the same as the neuroglia of Virchow, is described as being turbid, through the small points of obscure molecules uniformly diffused, and taking on a faint colour through imbibition. After prolonged maceration in a weak solution of acetic acid and separation with needles, this fundamental tissue, viewed with high powers, appeared to be composed of cells with very small nuclei, many of which had very fine processes, so as to resemble the appearance of the cells of the conjunctiva.

III. The prevailing form of nerve-cell in all the slices examined was the triangular one, with an oval or round nucleus. Few displayed the pyramidal form.

IV. The structure of the bloodvessels appeared normal, if anything they were somewhat larger than usual; and the perivascular lymphatic spaces were very clearly seen.

The whole encephalon weighed 289 grammes; the cerebrum 238 grammes; the cerebellum, pons varolii, and medulla oblongata, 51 grammes. Thus, the weight of the brain did not correspond with the cranial capacity. This agrees with the observations of Waisback, who found that the weight of the brain and the capacity of the skull do not keep a parallel relation, and increase by a different percentage. On the other hand, it helps to show the fallacy of the mathematical formula of the anthropologist Davis, made to determine the weight of the brain from the cranial capacity, calculating the appendages of the brain as $\frac{14}{100}$, and the cerebral mass as $\frac{88}{100}$, and its specific weight as 1·40. The absolute weight of the encephalon ought in this case to have been much greater.

The measurement of the convex surface of the brain gave an approximate extension of 1131 square millimetres. This confirms the observations of Wagner, who found that the diminution of weight did not correspond with the diminution of the surface of the brain. As Dr Adriani truly remarks, this case is unique, if we consider the extreme smallness of the cranium, the small weight of the brain, the advanced nervous organization, and the evolution of the intelligence. Passing over his comparison of the external measurements, we find that, among the cases published, Wagner had one whose brain weighed 300 grammes; Griesinger, one of 576 grammes; Theile, of 294 grammes; Gore, of 283 grammes; Marshall, of 238 grammes in a male idiot ten years old. Gaddi, Bastianelli, and Lombroso have given cases where the weight of the brain was between 300 and 400 grammes.

In none of these did the intelligence approach that of Grandoni; indeed, if I remember rightly, in all these instances the mental power was of the lowest. Any one who compares the cranial capacity of a few microcephalic idiots with the intellectual manifestations, will hardly fail to notice that the one does not bear any definite proportion to the other. Take, for example, the case of the microcephalic boy described by Dr Maclaren,[1] a creature almost devoid of intelligence, and the lively little fellow described by Dr Shuttleworth at the Edinburgh meeting of the Medical Association, and he will at once acknowledge that there must be some other difference than that of mere size, especially as the head of the first case was larger than that of the second. The cerebral substance must sometimes be inferior in quality as in quantity. In some cases the brain-tissue is healthy, or nearly so; in others it is not. This is a perplexing consideration, when we come to study microcephaly, but it is one which cannot be overlooked. Dr Adriani is disposed to think that the brain-tissue of Grandoni was healthy; and he is perhaps right in laying little stress upon what was seen through the microscope, the scarceness of the nerve-cells in proportion to the neuroglia or fundamental tissue; for the import of such appearances is not yet clearly understood.

"It does not require," observes the author, "a close examination to find the principal characteristics which distinguish the convolutions of man from those of the ape. In the brain of our microcephale, we do not find the perpendicular fissure which divides the brain of the anthropoid ape into anterior and posterior parts. The inferior surface of the frontal lobe is flat, and the convolutions, in their division, volume, contour, and disposition, have the form of the human type. An examination of the brain strengthens the conclusion that microcephales do not represent a degeneration in the sense of retrogression to the organic type of certain apes, but rather an arrest of development without aberration from the typical laws of organic formation through a pathological cause." Dr Adriani shows that other observers have found that diminution of the posterior cerebral lobes, and a shortening and thinning of the corpus callosum, are the most constant characteristics of the brain of microcephalic idiots.

He remarks that the defective development of the occipital and parietal lobes did not in this case appear to affect the intelligence, and quotes a case from Griesinger where there was a moderate and symmetrical diminution of the size of the posterior lobes, so that the cerebellum was in part uncovered; but the young man, far from being an idiot, was endowed with unusual intelligence. In more ways than one does this singular case perplex previously-conceived theories on the functions of the brain.

---

[1] See Dr Maclaren's paper, in the Edinburgh Medical Journal for October 1874; and a report of Dr Shuttleworth's one, in the British Medical Journal, 28th August 1875.

Part Second.

REVIEWS.

Forty-Second and Forty-Third Annual Reports of the Perkins Institution and Massachusetts Asylum for the Blind. Boston: 1873, 1874.

Annual Report of the Massachusetts School for Idiotic and Feeble-minded Youth, for 1872, 1873, *and* 1874.

Twenty-First Annual Report of the Pennsylvania Training School for Feeble-minded Children. West Chester: 1874.

Die Idioten-Anstalt zu Langenhagen im Jahre 1873.

Annual Report of the Connecticut School for Imbeciles at Lakeville, 1872.

Twenty-Fourth Annual Report of the New York Asylum for Idiots. Albany: 1874.

Tenth Annual Report of the Illinois Institution for the Education of Feeble-minded Children at Jacksonville. Springfield: 1875.

To teach even the most difficult of human speculations to the keenest intellect is a task that demands much less care and exertion than to teach the smallest thing to the most humbly gifted. Few indeed have any idea of the difficulty surmounted in teaching the blind, the deaf, or the idiotic, the three classes which require a special education, and the results obtained through the experience of their instructors are of great interest to those who study the nature of the human mind.

The reports of the Perkins and Massachusetts Institutions for the Blind are of extreme interest. They are written by Dr S. G. Howe, well known for his work upon "the Causes of Idiocy." In this Report he gives an account of his celebrated pupil Laura Bridgeman, who lost her sight and hearing in early infancy, and of Oliver Casswell, also blind and deaf from infancy. Both these unfortunate creatures were educated by Dr Howe, through a skilfully devised system of signs, which enabled them to communicate their feelings and thoughts. Dr Howe promises to give us a complete history of the process of education and the mental manifestations in these cases, and we have no doubt it will be found a most interesting volume, for Dr Howe possesses both the analytical talent of a metaphysician, and the power to make his writings amusing. The Report itself is most engaging reading. His account of the habits and pursuits of the blind in America, is very amusing. The Report is not for sale, so, in case we tantalize the reader, we shall wind up by quoting Dr Howe's opinion on a point of great importance:—

"I formerly believed and taught that those persons strongly marked by scrofula, by tendency to insanity, by organic defects, as blindness and mutism, should crucify themselves, and abstain from marriage. Reflection and experience, however, have changed that opinion. I have known heroic instances of such martyrdom. But martyrdom is not a natural remedy for evil; and if it were, not one in ten thousand will resort to it. We cannot disappoint and thwart our natural instincts with impunity, even that good may come from so doing. The natural compensations for endurance of evils, and the natural remedies for such evils, are many and marvellous.

"The fact to be considered here is the strong tendency to perpetuation of defects and infirmities in offspring; but the remedy is not, ordinarily, an attempt to starve instincts which cry continually for gratification; nor abstinence from those parental relations which are essential for the highest development of the best part of our nature; because a more merciful remedy is provided by our Maker, in that strong power of recuperation from any morbid condition, not necessarily mortal, which pervades all organized beings, and acts as steadily as gravitation itself. Not self-crucifixion, but suitable intermarriage, will, in a few generations, counteract the tendency to perpetuation among the offspring of inherited infirmities and inherited vices."

Dr Howe remarks that formerly, in all civilized countries, blindness and begging went together; but now, "in New England at least, blindness is no longer synonymous with dependence and pauperism. Hundreds of our graduates, scattered in the community, stand high in the esteem of their fellow-citizens, and are earning a good livelihood."

"When the Massachusetts institution was established," writes Dr Howe, "no other existed in the United States. Since then, New York, Ohio, Pennsylvania, Connecticut, Kentucky, and Illinois have adopted the policy of public aid for the instruction of idiots.

"Some of these states have established institutions upon a magnificent scale. Ohio, for instance, appropriated for buildings 250,000 dols.; and maintains the institution by an annual appropriation of about 40,000 dols.

"But not only have the large and rich states made provision for the instruction and improvement of idiots by building special schools for them, but the legislatures of smaller states are recognising the usefulness of such establishments by making appropriations for sending children of their own state to existing ones in neighbouring states. Maine, New Hampshire, Vermont, and Rhode Island are beginning to send beneficiaries to our school."

It may be here noticed that Dr Howe is the author of the Reports both of the Perkins Institution for the Blind and of the Massachusetts School for the Idiotic. The average cost of maintaining and instructing the pupils in the School for Idiots has been found to be about £41, 10s. a year. This is less than in Earlswood, but more than in Larbert, where the pupils are maintained at less than £30 a year. He finds the number of pupils whose parents can pay a board to be small, "mainly because idiotic or feeble-minded children are most likely to be born to families marked by bodily feebleness or vitiation of stock, which impoverishes its members. They become poor among the poor; and far outnumber the rich."

In commenting upon the groundless fear and horror of idiots, Dr Howe has the following sensible remark:—"Now, this feeling of fear and dread is groundless, because the animal nature and the animal passions of idiots, so far from being strong, are positively weak in comparison with those of sound men. There is less to be apprehended from outbreaks of passion and resort to force and violence in them than in ordinary persons. They are more like sheep than like wolves in sheep's clothing. Some of them have by nature a certain low cunning; and others have it engendered in them by harsh and cruel treatment while children."

In the Report of the Pennsylvania Training School, Dr Isaac Kerlin makes the following remarks upon the success of his treatment of epilepsy:—

"In previous reports we have already referred quite fully to the numerous applications for the admission of children, where infirmity of mind accompanies this serious disease. There is no provision made for this class, who are especially in need of hospital care and institute training, in whose cases, generally, there is an immediate amelioration on their removal from the exciting causes of home, to the discipline, hygiene, and amusements of a school home. It will be seen by our statistics that of the total number of children admitted to the institution, 157 were epileptic; of whom 23 were cured and 78 improved. Within the past three years this percentage of probable cure has increased, due to the efficiency of the two new remedies, bromide of potassium and hydrate of chloral. It is with some misgiving that we have used the word *cure* as applied to this disease, and have only done so where time has fully attested that all the functions are regularly performed, and that no spasmodic disease remains."

Dr Kind, at Langenhagen, in Hanover, has had about 30 epileptic idiots, among which he had several cures, but only with small results. They presented all forms of the disease, from the mildest to the most severe, and were all the more difficult to treat, that they presented on the one side complete fatuity and bodily helplessness, and on the other irritability, sometimes going as far as complete mania.

Dr Kind has about 200 pupils, and the quantity of work done by them is a credit to German industry. He has had some unfortunate epidemics in his establishment. In 1869 there were 50 cases of measles, and 5 of typhus; in 1872, 18 of scarlet fever, and 5 of measles, which shows the advantage of having a separate building where such cases can be isolated.

Dr Kind is inclined to the opinion that it would be much better if idiots, as a general rule, were all their lives kept in an institution under the charge of those who understand their deficiencies, feelings, and wants. On this point, however, there is variety of opinion amongst those who have had experienee.

Dr Knight, in the Report of the Connecticut School for Imbeciles, gives some statistics which show the great number of cases of idiocy.

" There are as many idiotic, imbecile, and feeble-minded, as there are insane, in Connecticut, New York, Massachusetts, Ohio, Kentucky, and Illinois, and, so far as I know, in every state or country where a careful census has been taken. Why, in the name of common humanity, should not the one class receive all the parental and financial aid from the state that the other does?

" Some may think the statement above is incorrect. In 1856, when an investigation was made, eighty-eight towns, having a population of 186,831, reported 514 idiots and imbeciles; and as these towns were located in every county of the state, it is fair to presume that they did not contain more than an average proportion. Assuming the average to be the same throughout the state, the whole number in Connecticut was more than 1000.

" Thirty per cent. of the whole number whose ages were given, were under twenty years of age.

" The Illinois State Board of Public Charities has recently published the statement, that the names of 1738 idiotic persons in that state have been reported by physicians; and, taking the statistics received as a basis, estimate that the actual number of such persons in Illinois is 2900, or one in 867 of the population of the state, which is a larger number than that of the insane.

" The Secretary of that Board says, 'It is safe to say that the proportion of idiots in Illinois (and probably in other communities) is at least as large as that of the insane.'

" Similar results or conclusions have been reached in every state or civilized country wherever thorough and careful investigations have been made.

" When it was announced that we had about 300 in Connecticut who were of proper age to draw the public money—that is, under sixteen years of age—great surprise was occasioned by the statement.

" Massachusetts, while taking a very complete census of insanity, had incidentally taken a partial and imperfect census of her idiocy, but had not arrived at the conclusion that her affliction in this respect could be so great as thus declared by the commissioners of

Connecticut. The judgment of the best informed now place the ratio in Massachusetts where it was placed in our own state, in 1856."

We cannot prove that this proposition holds good in Great Britain. The returns from the census are perfectly useless, but there is no doubt the number of idiots is much greater than is generally thought.

We have already favourably reviewed a number of the Reports of the New York Asylum for Idiots, and we cannot find anything new in this one save a criticism which the Superintendent, Dr H. B. Wilbur, has introduced upon the proposed system of classification of idiots, which has been published in this Journal, in the following terms:—

"Take one of the latest of these classifications that has fallen under my eye. It is found in a paper, read before the British Medico-Psychological Association, on the Classification and Prognosis of Idiocy. The author divides idiocy into ten groups or classes:—1. Hydrocephalic idiocy. 2. Eclampsic idiocy. 3. Epileptic idiocy. 4. Paralytic idiocy. 5. Inflammatory idiocy. 6. Traumatic idiocy. 7. Microcephalic idiocy. 8. Congenital idiocy. 9. Cretinism. 10. Idiocy by deprivation—that is, by the loss of two or more of the senses.

"With more than twenty-five years of observation of idiots, and engaged during the whole period in the effort to ameliorate their condition, I am constrained to say, that I have seen almost every shade of mental deficiency in connexion with each of these groups enumerated. But the essential thing in idiocy is the mental deficiency, no matter upon what physical cause depending. The two last groups have positive and easily-detected characteristics, and so a clear significance. But examine for a moment the others. The eighth group, or congenital, may also include any one, or, in fact, almost all, of the preceding. Of several of them it may be said, that they are not only not incompatible with certain others, but very commonly associated with them. In other words, many idiots could be properly ranked in two or more of the categories named.

"Then as to the results of management and treatment or training and instruction, or, as it is put, the prognosis, I see no guide in such a system of classification for determining this. The very basis of the classification is upon secondary pathological conditions, that in turn rest upon organic lesions, the nature and extent of which can only be a matter of surmise or inference.

"A pathological classification may however be used to indicate the ordinary and immediate causes which produce idiocy."

We doubt much whether Dr Wilbur has kept these groups in his mind for twenty-five years, and made observations upon them; and going on so long to observe without any classification, he is not likely to adopt one now. He even objects to a classification based upon differences in mental capacity: they are, he observes, "entirely arbitrary;" but, "if this is kept in view, and they are proposed and used only to mark general degrees of mental deficiency that nevertheless run into each other by insensible gradations, they have a special use or convenience in a certain class of writings on the subject." Why, in this way the word idiocy itself might be put down as "entirely arbitrary," as it fades away on the one hand into stupidity, and on the other into merely vegetable life. The essential thing, Dr Wilbur says, in idiocy is the mental deficiency. Who said it was not? No one affirmed that these ten groups represented ten different mental stages. Most, if not all of them, have certain general mental characteristics, as pointed out by the author of the classification, which may be of service in prognosis. Had Dr Wilbur told his readers where the paper upon which he writes could be found,[1] it would have given any one interested in the matter an opportunity of knowing that all his objections had been already considered.

Dr Ireland proposed a classification of idiocy to assist in its scientific study, as yet much neglected, and Dr Wilbur treats as valid an objection which applies to nosologies universally received. We once knew an old doctor who had no idea of the stethoscope, and was averse to classification. When a patient had anything wrong with his breathing, he would say, "There is a good deal of pulmonary mischief here." This was "the essential thing." Had he known Dr Wilbur, he might have learned from him that it is a useless refinement to classify pulmonary mischief into pleurisy, pneumonia, or phthisis, for he had seen all grades of breathlessness with each disease, and we often find pleurisy and phthisis, or pleurisy and pneumonia, together, or we may have all three at once. In the same manner a man may have measles and scarlet fever, or syphilis and rheumatism, at once, or mania or melancholia alternately, and so on. So far from cretinism being a peculiarly distinct form of idiocy, it is much less distinct than several of the other groups. It appears from the regulations at the end of the Report that epileptic idiots are excluded from gratuitous benefits of the New York Training School. Is this not a fair recognition that such a group exists? Surely Dr Wilbur would give a different prognosis between an epileptic idiot and a microcephalic one. Microcephaly he thinks a useless division, and yet the valuable contributions to the pathology of idiocy of Vogt and Lombroso could not have been written if this definition had not been held to. As for congenital idiocy, the word is used by the author of the classification in a different sense from that in which Dr Wilbur objects to it, viz., "To comprehend all those cases which, shrouded in the obscurity of intra-uterine life, cannot be traced back to any known specific disease." He adds, "If we cannot classify them in a more specific way, we at least save confusion by putting them aside from the other classes, and inviting attention to the unresolved problems which they represent."

---

[1] See the Journal of Mental Science for October 1872, and the Edinburgh Medical Journal for January and February 1874.

The more carefully congenital idiocy is studied, the more cases will be sent into the other groups. Still, it is to be regretted that this ill-defined class is so numerous. Dr C. T. Wilbur, of the Illinois Institution, gives in his Report the ascribed causes of idiocy in 675 applicants, and puts down above one half as congenital. We believe that with careful scrutiny this could have been very much reduced. He has only eight cases as resulting from hydrocephalus, obviously too few. Dr C. T. Wilbur thinks that congenital idiocy furnishes the most improvable subjects for the schoolroom. The Illinois Report is an interesting and suggestive one, especially in reference to the training.

We might go on to consider the objections to the practical value of the classifications, but in case we trespass too much on our readers' attention, we shall finish with the remark, that no classification of diseases was ever contrived not liable to numerous objections. Let Dr Wilbur make a better one himself, and no doubt it will be adopted for a time; but, however good it may be, we shall be able to find many flaws in it.

All the American reports show considerable literary ability, but we would like to have a little scientific work on the subject. As far as we know, no book or contribution of any consequence on idiocy has been published in America within the last few years, and the two periodicals devoted to the study of mental diseases — the *American Journal of Insanity* and the *Chicago Journal of Nervous Diseases*—seem to pass over the subject as if it were out of the fair scope of those who study mental derangement.

WE have received four numbers of the *Annali Universali di Medicina et Chirurgia, diretti dal Dottor Malachia De Cristoforis*, which appear once a month at Milan, in an octavo number of about 200 pages. We do not know of any better account of the progress of medical science than is given by this periodical. The reports are taken from papers in almost every language used by civilized nations of European origin. There are also a considerable number of original articles by Italian physicians and surgeons, which are not the least important part of the periodical.

Handbook of the Trade Products of Leh, with the Statistics of the Trade from 1867 *to* 1872 *inclusive.* By J. L. T. AITCHISON, M.D., F.L.S., Surgeon-Major H. M. Indian Army; lately British Commissioner, Ladakh. Calcutta: Wyman and Co.: 1874.

EDINBURGH graduates of 1856 will well remember the author of this work as one of the best known, most energetic, and popular of students,—an enthusiastic dresser in Mr Syme's wards,—a man, in fact, who was sure to do his best, and to come to the front whenever he had a chance. His career in India has not belied his early promise; and in this thick octavo, compiled under great difficulties and in a marvellously short time, we find new evidence of his diligence, tact, and energy. It is arranged as a dictionary for convenience of reference, and contains numerous tables and some illustrations. We have no doubt it will prove of great use to merchants and others interested in the trade of the district.

The Royal Tiger of Bengal: His Life and Death. By J. FAYRER, M.D., F.Z.S., Bengal Medical Service. London: J. and A. Churchill: 1875. Pp. 100.

THIS is an account of the tiger from the field-naturalist's point of view, and, as is the case with every production of Dr Fayrer's pen, is full of interesting material and life-like description. After defining the tiger's "position in animal life," a brief anatomical sketch is given, after which its distribution, habits, and achievements are described. The whole is appropriately finished by an account, from the sportsman's point of view, of the various modes in which his death is accomplished—with the usual accompaniment of a few tiger stories more or less bloody and sensational. The worst of the book is, its want of arrangement, *scrappy* character, and many marks of haste and carelessness which deform it. There is no division into chapters, no index, a list of discovered errata filling half a page, and several unnecessary and evidently unintentional repetitions. What is worth doing at all, is worth doing well, and Dr Fayrer might have done this much better.

Hospital Outlines: Sketches and Portraits.

IN the July number of the *Cornhill* there appeared a series of word paintings, with the above title, which ought to possess some interest for our readers, as they are dated from the Royal Infirmary, Edinburgh. The thoughts and language are, however, so unlike those we usually find flowing from infirmary patients, that some who have condescended to notice these sonnets have had little hesitation in regarding them as mere fancy sketches, the product of a masquerader. Yet there is a grim reality about the sketches, which the initiated cannot fail to recognise; while those acquainted with the Edinburgh School to-day will have little difficulty in attaching a name to each of the portraits, all the more easily, perhaps, that with a rare skill, the writer has not only succeeded in giving us in a few graphic lines a lifelike portrait of the individual, but has also impressed upon it the mental characteristics of the original. They are all, from the Surgeon to the Scrubber, about as perfect as they could well be made within such short space; the quaintest of them all is that of the Lady Visitor, the most pathetic that of the Lady Probationer—whose "history," alas! has found its fitting end. In truth, Mr Henley is no ordinary infirmary patient, though in one respect he may with only too much truth claim the title, for one third of his brief life of twenty-four years has been spent within the walls of such retreats, and no doubt his long experience has helped to give his pen its sharp incisive style in treating of such long familiar objects. The profession owes him something for these interesting sketches, but our common humanity owes him more for his noble example of uncomplaining fortitude:

"Behold me, gruesome, waiting for the knife!
A little while, and at a leap I storm
The thick sweet mystery of chloroform,
The drunken dark, the little death-in-life.
The gods are good to me: I have no wife,
No helpless child, to think of as I near
The fateful minute; nothing all too dear
Unmans me for my hour of passive strife.
Yet I am tremulous and somewhat sick;
And, face to face with chance, I shrink a little.
My hopes are strong, but, ah! my will is weak."

This is "before operation," and following it we have a very real description of the waking "after operation," when—

"All is away—except a heavy pain,
Grinding through leg and foot. And, brokenly,
Time and the place glimpse on to me again.
And, unsurprised, out of uncertainty,
I wake—relapsing—somewhat faint and fain,
To an immense complacent dreamery."

We wish we had these sketches in a handier form; it would be difficult to get an artist capable of correctly illustrating them, but they are well worthy of it, and a likeness of the "Staff Nurse—old style," and of the old place—so soon to be swept away—would be sure to carry them wherever the name of Syme, or his great ally Mrs Porter, is known.

Impressions of Madeira. By William Longman, F.G.S. With a Map.

This little pamphlet is a reprint of an article from *Fraser's Magazine* for August last. It gives, in a pleasant manner, much information concerning Madeira that will be acceptable to the physician who regards that island as a desirable haven for certain classes of invalids. Whilst the pamphlet may be recommended as an eminently readable one, to enter in detail into its description of Madeira lies of course without our special province, and we may therefore briefly sum up what Mr Longman has to tell us regarding the health-aspects of the island. He tells us that "the climate is not agreeable" to those who are in good health; that "it is too relaxing;" that it "renders one indisposed to pedestrian exercise;" and that "to invalids, for whom a bracing air is not required, the remarkable stability of the temperature is a great recommendation." We fancy that, in the vast majority of cases, invalids and healthy people have alike to become more or less acclimatized to the climate and temperature of the health-resorts to which they are sent; only, it is the physician's due province to direct the steps of his patient in the direction of the climate and surroundings which will most surely benefit the diseased conditions. Mr Longman gives some useful information concerning the various lines of steamers by which Madeira may be reached; but he adds the rather discouraging observation, and one certainly new to us, that "the Portuguese officials do all they can to discourage visitors to Madeira." Most people will remark that this latter policy, if acted upon, is decidedly suicidal in its character, in so far as the commercial interests and prosperity of Madeira are involved. A useful map is appended to the pamphlet.

The Veterinary Journal, and Annals of Comparative Pathology. Edited by George Fleming, F.R.G.S., etc. London: Baillière, Tindall, and Cox. Vol. I., Nos. 1 and 2 (July and August 1875).

The appearance of this periodical, devoted to the interests and advancement of veterinary science, marks a new and hopeful era in the history of comparative medicine. Any honest labours which will tend to raise medical science in any of its aspects, above the level of mere empiricism, deserve the warm support and commendation of all interested in the growth of the modern "tree of knowledge." And therefore, from a careful perusal of the contents of these opening numbers of the *Veterinary Journal*, we feel bound, firstly, to congratulate the veterinary profession on its being represented by so able a medium; and, secondly, to hope that the high character of the opening numbers may be maintained throughout the entire existence of the *Journal*. Most people who know anything of the past history of veterinary medicine will agree with us, that attempts to treat veterinary matters in a truly scientific spirit have not been made a whit too soon. The advances made of late years have almost entirely driven that old rule-of-thumb practitioner the "farrier," with his ancient nostrums and infallible receipts, out of the field, and have replaced him by the more modern "vet," who, if sometimes a little inclined to do simply as did his fathers before him, has yet the makings of a trustworthy scientific practitioner in him. And definite curricula of studies, well-qualified professors, and satisfactory sets of examinations, will undoubtedly tend in the future to make the veterinary student well fitted to hold his own in this particular, and frequently trying, walk in life.

Glancing cursorily over the contents of the numbers before us, we find intelligent articles on the "Increase and Prevention of Glanders" (Hunting); on "Ovarian Dropsy" (Pallin); "Case of Favus in a Mouse;" "Veterinary Practice in India;" and the first of a series of "Lectures on Soundness in Horses," by Professor Fearnley, late of Edinburgh, in the first number. An "Editorial Explanation" occupies a natural place in the July part; and leading articles on veterinary matters are also duly represented. Reviews—an elaborate one of Marey's "Animal Mechanism" may be noted—are not neglected; and what is perhaps as valuable a feature as any in the work, is the publication of a regular monthly periscope of the current progress of veterinary science—similar in nature to the reports in our own Journal, and in the *Journal of Anatomy and Physiology*. We are glad to observe that the labours of foreign workers are duly noted in these reports. The August number contains papers on "Diphtheria in Dogs and Horses," on "Hypertrophy of the Heart in the Horse," and on "Diseases of the Maxillary Sinuses,"—this last, a carefully written and valuable contribution to the literature and history of an obscure subject. The editorial articles are especially strong in this part, as also are the reports. Dr Klein is at home in this number in his particular sphere, in a contribution on the "Histo-Pathology of Sheep-pox," an article which the medical man might peruse with profit.

We should imagine that the *Veterinary Journal* will be the inevitable companion of every intelligent practitioner, and that its volumes will occupy a prominent position on the shelves of his bookcase, as reliable works of reference and authority in many a doubtful moment and puzzling case.

Part Third.

MEETINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXIV.—MEETING X.

Wednesday, 23d June.—Dr MATTHEWS DUNCAN, *President, in the Chair.*

Mr Lawson Tait, of Birmingham, was elected a Corresponding Member; and Dr Gunn, of Beaverton, Ontario, Canada, was elected an Ordinary Member of the Society.

I. *Dr Underhill* exhibited a UTERUS AND APPENDAGES, in the left broad ligament of which was a Wolffian cyst of about the size of a large walnut.

II. *Dr Matthews Duncan* related a CASE OF SPINA BIFIDA which he had treated by excision, and in which the patient had died of bronchitis some weeks after the operation; and showed the specimen. The child was born with a large tumour (about the size of a seventh-month fœtal head) on the middle of the lumbar spine. The tumour was sessile, and its attachment was about 1½ inches in diameter, and corresponded to a portion of the vertebral column, where the laminæ and spinæ were absent. It was firm and elastic, and the mother thought it increasing in size. The skin on it was in some parts natural, in others thin, translucent, and bluish or livid. There was no fluctuation or distinct feeling of fluid in it. The child was healthy and about three months old. Dr Duncan first tried to evacuate it by tapping, but only a little clear transparent fluid ran out. More was squeezed out. Subsequently it was incised and freely squeezed, much nearly limpid fluid being expressed. The openings made soon healed, and the tumour became as large as ever. It was found to be composed of a myxomatous or œdematous tissue, which was only slightly vascularized. Subsequently, Dr Duncan cut out a large wedge-shaped slice equal to a half of the whole. The incisions went down to the dura mater, to be afterwards described. This effected a proportional and permanent diminution of the tumour, and the child soon recovered from the operation; the wound being completely healed and the child well. Dr Duncan intended to complete the excision. But the child, while in good health, twenty-seven days after the operation, was taken out late at night, caught severe bronchitis, and died after two days' illness. The dura mater was, on dissection, found to project from the regular contour of the spinal cavity to the size of about half a walnut, the great mass of the tumour being composed of myxomatous tissue enclosed between this membrane and the distended skin. There was no evidence of inflammation of the membranes of the cord, and during life there had never been any cerebral or spinal symptoms.

III. *Dr Underhill* read a NOTE ON THE UTERINE MUCOUS MEMBRANE OF A WOMAN WHO DIED IMMEDIATELY AFTER MENSTRUATION, which appeared in the Journal for August, at page 132.

Dr Duncan hoped Dr Underhill would continue to work at the subject, as we cannot form a judgment upon only a single case. Of course, if there were true glands found, and the preparations showed them clearly enough, there must be mucous membrane, for no anatomist would state that glands develop in the muscular tissue. As regards the muscular tissue itself, experience had shown the difficulty of making out, particularly in the case of the unimpregnated uterus, what was muscular tissue and what was fibrous. He had always looked upon Dr Williams's views as erroneous, as he could not believe in a complete denudation of the uterus at each menstrual period, with subsequent renewal before the next period. In a recent paper, Engelmann refers to Williams's paper as showing results which are quite untenable.

IV. *Dr M'Rae* read a paper, entitled REMARKS ON A CASE OF TWIN CONCEPTION, WITH DEATH OF ONE FŒTUS IN UTERO.

Dr Simpson remarked on the great development of the child which had lived—an uncommon condition in these cases. As to the cause of death of the dead child, he could not quite agree with Dr M'Rae in ascribing it to the prolonged syncope, which would naturally have acted equally upon both fœtuses. He had remarked a condition in this case which he had found several times before in such cases, namely, that the cord of the dead child was very long and unusually tortuous. The twins appeared to be have been developed from different ova. He agreed with the author that twinning was often associated with degeneration of constitutional vigour in the parents. Its connexion with the diseases of tissue degeneration, such as scrofula, syphilis, and cancer, had been brought before the Society long ago by Dr Arthur Mitchell.

Dr Underhill remarked that the dead fœtus was not so flattened as is generally found to be the case when one of twins dies early and the other goes on to the full time. He was the more surprised at this as the living child had attained to a size and development quite exceptional in twin cases. He could hardly ascribe the death of the fœtus to the syncope, as this condition is so commonly associated with the period of quickening without any untoward result.

Dr M'Rae explained that the patient was twenty-four hours in the condition of syncope, and he certainly thought that, particularly in a twin case, where so large a blood-supply was necessary to support the twin placentæ, the retardation of the current associated with so prolonged a syncope was quite sufficient to account for the fatal result to the dead twin. He might also mention that the patient had never been sick in any of her pregnancies, nor had she ever fainted at the time of quickening.

V. A discussion on the PREVENTIVE TREATMENT OF MAMMARY INFLAMMATION AND ABSCESS was opened by Dr Milne, in which Drs Ritchie, Thorburn, Carmichael, James Young, Rattray, Bruce, Simpson, and M'Rae took part.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS.

THE following are the Regulations of the General Medical Council on the subject of Medical Education and Examinations:—

I.—PRELIMINARY EXAMINATIONS.

1. That Testimonials of Proficiency, granted by the National Educational Bodies according to the subjoined list, may be accepted, the Council reserving the right to add to, or take from, the list.

List of Examining Bodies whose Examinations fulfil the Conditions of the Medical Council, as regards Preliminary Education.

(1.) UNIVERSITIES OF THE UNITED KINGDOM.

Oxford.—Examination for a Degree of Arts. Responsions, Moderations, Local Examinations (Senior), Certificate to include Latin and Mathematics.

Cambridge.—Examination for a Degree in Arts. Previous Examination. Local Examinations (Senior), Certificate to include Latin and Mathematics.

Durham.—Examination for a Degree in Arts. Examination for Students in their second and first years. Registration Examination for Medical Students. Local Examinations (Senior), Certificate to include Latin and Mathematics.

London.—Examination for a Degree in Arts. Matriculation Examination.

Aberdeen, Edinburgh, Glasgow, and St Andrews.—Examination for a Degree in Arts. Preliminary Examination for Graduation in Medicine or Surgery. Examination of (Senior) Candidates for Honorary Certificates under the Local Examination of the University of Edinburgh.

Dublin.—Examination for a Degree in Arts. Entrance Examination.

Queen's University (Ireland).—Examination for a Degree in Arts. Entrance Examination. Examination for the Diploma of Licentiate in Arts. Previous Examination for B.A. Degree.

(2.) OTHER BODIES NAMED IN SCHEDULE (A) TO THE MEDICAL ACT.

Royal College of Surgeons of England.—Examination conducted under the Superintendence of the College of Surgeons, by the Board of Examiners of the Royal College of Preceptors.

The Society of Apothecaries of London.—Examination in Arts.

Royal Colleges of Physicians and Surgeons, Edinburgh.—Preliminary Examination in General Education, conducted by a Board appointed by these two Colleges combined.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary Examination in General Literature.

Royal College of Surgeons in Ireland.—Preliminary Examination, Certificate to include Mathematics.

Apothecaries' Hall of Ireland.—Preliminary Examination in General Education.

(3.) EXAMINING BODIES, IN THE UNITED KINGDOM, NOT INCLUDED IN SCHEDULE (A) TO THE MEDICAL ACT.

Royal College of Preceptors.—Examination for a First Class Certificate.

(4.) COLONIAL AND FOREIGN UNIVERSITIES AND COLLEGES.

Universities of Calcutta, Madras, and Bombay.—Entrance Examination, Certificate to include Latin.

M'Gill College, Montreal.—Matriculation Examination.

University of Toronto, King's College, Toronto, Queen's College, Kingston, Victoria College, Upper Canada.—Matriculation Examination.

King's College, Nova Scotia.—Matriculation Examination. Responsions.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation Examination.

University of Fredericton, New Brunswick.—Matriculation Examination.

University of Melbourne.—Matriculation Examination, Certificate to include all the subjects required by the General Medical Council.

University of Sydney.—Matriculation Examination.

Codrington College, Barbadoes.—1. English Certificate for Students of two years' standing, specifying the subjects of Examination. 2. Latin Certificate, or "Testamur."

Tasmanian Council of Education.—Examination for the Degree of Associate of Arts, Certificate to include Latin and Mathematics.

Christ's College, Canterbury, New Zealand.—Voluntary Examination, Certificate to include all the subjects required by the General Medical Council.

The Examiners for Commissions in the Military and Naval Services of the United Kingdom.—Certificate to include all the subjects required by the General Medical Council.

Cape of Good Hope.—Third Class Certificate in Literature and Science granted by the Board of Public Examiners.

South Australia—South Australian Institute, Adelaide.—Preliminary General Examination.

N.B.—A Degree in Arts of any University of the United Kingdom or of the Colonies, or of such other Universities as may be from time to time recognised by the General Medical Council, will be considered a sufficient testimonial of proficiency.

2. That it be recommended to the Licensing Boards not to accept the Certificate of Proficiency in General (preliminary) Education from any of the Bodies, the names of which are contained in the list annually circulated, unless such Certificate testify that the Student to whom it has been granted has been examined in:—1. English Language, including Grammar and Composition.[1] 2. Arithmetic, including Vulgar and Decimal Fractions. Algebra, including Simple Equations. 3. Geometry—First two books of Euclid. 4. Latin, including Translation and Grammar.

And in one of the following optional subjects:—Greek. French. German. Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

3. That students who cannot produce any of the Testimonials referred to in the first Recommendation be required to pass an Examination in Arts, established by any of the Bodies named in Schedule (A) to the Medical Act, and approved by the General Medical Council.

---

[1] The General Medical Council will not consider any Examination in English sufficient that does not fully test the ability of the candidate,—*1st*, To write a few sentences in correct English on a given theme, attention being paid to spelling and punctuation as well as to composition. *2d*, To write a portion of an English author to dictation. *3d*, To explain the grammatical construction of one or two sentences. *4th*, To point out the grammatical errors in a sentence ungrammatically composed, and to explain their nature. *5th*, To give the derivation and definition of a few English words in common use.

II.—REGISTRATION OF MEDICAL STUDENTS.

1. Every Medical Student shall be registered in the manner prescribed by the General Medical Council.

2. No Medical Student shall be registered until he has passed a Preliminary Examination, as required by the General Medical Council.

3. The commencement of the course of Professional Study recognised by any of the Qualifying Bodies, shall not be reckoned as dating earlier than fifteen days before the date of Registration.

4. The Registration of Medical Students shall be placed under the charge of the Branch Registrars.

5. Each of the Branch Registrars shall keep a Register of Medical Students according to the subjoined Form:—

Form for the Registration of Medical Students.

Date of Registration.	NAME.	Preliminary Examination and Date.	Place of Medical Study.

6. Every person desirous of being registered as a Medical Student shall apply to the Branch Registrar of the division of the United Kingdom in which he is residing, according to the annexed Form, which may be had on application to the several Qualifying Bodies, Medical Schools, and Hospitals; and shall produce or forward to the Branch Registrar a Certificate of his having passed a Preliminary Examination, as required by the General Medical Council, and a statement of his place of Medical Study.

Form of Application for Registration as a Medical Student.

I hereby apply to be registered as a Student in Medicine, in conformity with the Regulations of the General Council of Medical Education and Registration of the United Kingdom, for which purpose I submit the following particulars:—

NAME OF APPLICANT. (To be written in words at length.)		Preliminary Examination.	Date of Preliminary Examination.	Place of Medical Study.
Surname.	Christian Name.			

Applicant's Signature ———.
Address ———.
Date of Application ———.

To the Registrar of the Branch Council for ———.

N.B.—The above Form of Application, duly and legibly filled up, must be forwarded to the Registrar, post free, and be accompanied by a Certificate of the Applicant's having passed a Preliminary Examination, as required by the General Medical Council; and a statement of his place of Medical Study.

The Certificate of Examination must testify that the Student has been examined in,—1. English Language, including Grammar and Composition; 2.

Arithmetic, including Vulgar and Decimal Fractions; Algebra, including Simple Equations; 3. Geometry—First two books of Euclid; 4. Latin, including Translation and Grammar. And in one of the following optional subjects: —Greek; French; German; Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

7. The Branch Registrar shall enter the Applicant's name and other particulars in the Students' Register, and shall give him a Certificate of such Registration.

8. Each of the Branch Registrars shall supply to the several Qualifying Bodies, Medical Schools, and Hospitals, in that part of the United Kingdom of which he is Registrar, a sufficient number of blank Forms of Application for the Registration of Medical Students.

9. The several Branch Councils shall have power to admit special exceptions to the foregoing regulations as to Registration, for reasons which shall appear to them satisfactory.

10. A copy of the Register of Medical Students, prepared by each of the Branch Registrars, shall be transmitted, on or before the 31st December in each year, to the Registrar of the General Council, who shall, as soon as possible thereafter, prepare and print, under the direction of the Executive Committee, an Alphabetical List of all Students registered in the preceding year, and supply copies of such authorized list to each of the Bodies enumerated in Schedule (A) to the Medical Acts, and through the Branch Registrars to the several Medical Schools and Hospitals.

11. The several Qualifying Bodies are recommended not to admit, after October 1870, to the final Examination for a Qualification under the Medical Acts, any Candidate (not exempted from Registration) whose name had not been entered in the Medical Students' Register at least four years previously.

In the case of Candidates from other than Schools of the United Kingdom, the Branch Councils shall have power to admit exceptions to this recommendation.

The Branch Councils are desired to take means to make these regulations known to the Medical Students at the various Medical Schools.

III.—Age for License to Practise.

1. That the age of twenty-one be the earliest age at which a Candidate for any Professional License shall be admitted to his final Examination; that the age shall, in all instances, be duly certified; and that a Return of any exceptions to this recommendation allowed by the Licensing Bodies, together with the reasons for such exceptions, be transmitted to the Branch Council of that part of the United Kingdom in which they have been granted.

2. That no License be obtained at an earlier period than after the expiration of forty-eight months subsequent to the Registration of the Candidate as a Medical Student.

IV.—Professional Education.

1. That the course of Professional Study required for a License shall comprehend attendance during not less than four Winter Sessions, or three Winter and two Summer Sessions, at a School recognised by any of the Licensing Bodies mentioned in Schedule (A) to the Medical Act.

2. That the following are the subjects without a knowledge of which no Candidate should be allowed to obtain a qualification entitling him to be registered:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chemistry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

Chemistry should include a knowledge of the principles of Chemistry, and of those details of the science which bear on the study of Medicine.

Medicine and Surgery should include a knowledge of Systematic and Clinical Medicine and Surgery, and also of Morbid Anatomy.

3. That it be recommended to the several Licensing Bodies that the courses of instruction required by them be framed in such a manner as to secure a due share of attention, both to preparatory branches and to those more

strictly connected with the Practice of Medicine and Surgery; and that it be suggested accordingly to these Bodies, that their regulations should be such as to prevent attendance upon Lectures from interfering with Hospital and Clinical Study.

4. That the Council will view with approbation any encouragement held out by the Licensing Bodies to Students to prosecute the study of the Natural Sciences before they engage in studies of a strictly professional character.

V.—Professional Examination.

1. That it is desirable that the different Licensing Bodies should combine their Examinations, when this is practicable, so as to secure that the knowledge of every Practitioner whose name appears on the Register shall have been tested in all the subjects of Professional Education which the Council has determined to be essential, viz.:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chemistry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

2. That those Licensing Bodies which have not already done so, be requested to furnish a statement of the dates of their Examinations and of the modes in which such Examinations are conducted, whether by written, oral, or practical Examination, and of the length of time a Candidate is under Examination in each or all of these ways; and that the Registrar transmit these Reports to the Members of the Council, in order that they may be taken into consideration at the next meeting of the several Branch Councils.

3. That the Professional Examination for any License be divided into two parts; the first embracing the primary or fundamental branches directly connected with the practice of Medicine and Surgery; that the former be not undergone till after the close of the Winter Session of the second year of professional study; and the latter, or final Examination, not till after the close of the prescribed period of professional study.

4. That the Examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

5. That the Professional Examinations be conducted both in writing and orally; and that they be practical in all branches in which they admit of being so.

6. That not less than two Examiners, or one Examiner with an Assessor, should be present at every Oral Examination.

7. That the Oral Examinations should be so far public as to be open at least to the Medical and Surgical Graduates, or members of the Examining Body.

8. That the questions to be answered in writing should be so numerous, and embrace such a variety of the details of each subject, as may adequately test the proficiency of the Candidate; and that they should be submitted to the whole body of Examiners for consideration and revision, if desirable, before being proposed to the Candidates.

9. That the written answers should be submitted to more than one of the Examiners.

10. That excellence in one or more subjects should not be allowed to compensate for failure in others.

11. That if a Candidate be rejected for failure in any one subject, he should be re-examined in all.

12. That Examiners should only be elected for definite periods, with power of re-appointment.

13. That the Professional Examinations be held by the several Licensing Bodies, except in special cases, at stated periods, to be publicly notified.

14. That returns from the Licensing Bodies in Schedule (A) be made annually, on the 1st of January, and in the subjoined form, to the General Medical Council, stating the number and names of the Candidates who have passed their first as well as their second and third Examinations, and the number of those who have been rejected at the first and second and third Examinations respectively; and that the Registrar forward a sufficient number of forms, with a notice for their being returned in due time.

Table of Return of Professional Examinations, and their Results.

LICENSING BODIES.	QUALIFICATIONS.	NO. PASSED.			NO. REJECTED.		
		1st Exam.	2d Exam.	3d Exam.	1st Exam.	2d Exam.	3d Exam.

15. That for the future the Licensing Bodies, which do not already do so, distinguish separately in their Returns the names and numbers of Candidates examined, and the numbers of those passed and rejected at the examinations for each of the qualifications conferred.

16. That it is not desirable that any University of the United Kingdom should confer any degree in Medicine or Surgery, whether that of Bachelor, Doctor, or Master, upon Candidates who have not graduated in Arts, or passed all the Examinations required for the Bachelorship in Arts, or the Examinations equivalent to those required for a degree in Arts.

THE EDINBURGH SCHOOL.

A VERY suitable subject for a few words in a students' number of the *Edinburgh Medical Journal*, seems to be the merits and advantages of the Edinburgh School of Medicine. By this we mean not only the Medical Faculty of the University, but also that "fortuitous concourse of atoms," commonly called the Extra-Academical School, or the School of Medicine of Edinburgh. The teachers of this body are nearly all connected with the Infirmary, or at least aspire to such connexion. Many of them are young, all enthusiastic. Their lectures qualify for most of the examining boards of the United Kingdom, and are accepted by the University itself to an extent of one third of its qualifying curriculum. In many branches courses of lectures are given by the extra-mural lecturers which have no rivals within the walls, and thus they supplement in a most valuable way the teaching of the University. Indeed, we do not hesitate to say that the chief glory of the Edinburgh Medical School, and the principal reason of its long, unbroken, and unexampled prosperity and success, are to be found in the fact, that in reality it consists of two schools practically under one roof, each supplementing and strengthening the other. In London there are many schools and many distinguished teachers in each; but by the exigencies of time and space—by the fact that they are so distant from each other—a student can only attend one school at a time, and practically never migrates from one to another. Hence his power of selection of a teacher for each branch of study is gone. He must just take the lectures provided for him in each branch, be they good or bad, and some of them are almost certain to be very bad. Does this seem a harsh judgment? No; it is impossible it can be otherwise; for at some schools, who go upon the principle of keeping their own good things for their own men, and advancement by seniority, the man who aims at the Lectureship on Surgery may have to begin by giving the Botanical Lectures, and then be promoted to Medical Jurisprudence; fortunate, perhaps, if he is not next shunted into the Midwifery Chair. At this rate he may not get the Surgery till he is fifty, and then he has soon to resign it, either from having too much private practice, or because his time at Hospital is over.

Here it is quite otherwise: a man chooses his own branch, passes his examination as a lecturer, secures a class-room, and then, with a fair field and no favour, must depend very much on his own powers, energy, and talent. He may attract any one of all the 700 or 800 students in Edinburgh, for his class-room is close to the University and the Hospital, and his lectures will qualify.

What an advantage this power of selection is to the student can easily be seen—if the Professor is dull, or he cannot hear him, he need not waste his time, he can go where he likes. And, on the other hand, what an advantage to the Professor; he must work; he cannot rest on his oars, lest his active young rivals cut him out—no fear of his being lazy. And what an advantage to the School, especially the University, to have a constant supply of candidates in each branch ready to fill a vacant chair—in many instances, enough to send professors to other universities.

Nowhere else in this country is there the same arrangement. Glasgow has a double School, each one strong, but they are rivals, not colleagues; and the lectures of the Andersonian are not accepted by the University, and the distance is too great for the student to attend classes at both, without great sacrifice of time.

Often when one great man after another has been taken from the Edinburgh School—when Syme and Simpson, Goodsir and Bennett, have left us one by one,—an Ichabod has been sounded over us by kind sympathizing friends in the south, but we flourish still; and so long as the Schools go on hand in hand, rivals, not enemies, both teaching the same students in the same hospital, so long will the Edinburgh School of Medicine continue to be the best, as it is by far the largest, in the British Empire, and the world.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Scotch Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first Professional is held in October as well as April. The other Licensing Boards' examinations are held at various periods throughout the year. Special examinations, under circumstances of urgency, can be held at almost any time; but they, of course, entail considerable addition to the expense.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	
Edinburgh University, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	3 mo., or 6 cas.	6	
University of Glasgow, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
University of Aberdeen, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3		3	3	3	6	6	24	do.	6	
University of St Andrews, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
London University, M.B., ...	21	6	12	6	1 crs	1 crs	6	6	6	1 crs	1 crs	1 crs			1 crs	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D., . .	21																				
Dublin University, M.B., ...		6	6	6	3 ms	3	3	6	6	6	3		3				9	24	6 mo.		
" " Surgical Diploma, .		12	18	6	3	6	18	12	6	6	3		3			27	27	27			
The Queen's University of Ireland, M.D.,		12	12	6	3	6	12	6	6	6	3		3	3	3 mos.	12	12	24	3 mo.		
Royal College of Physicians, London, .	21	12	12	6	3	3	12	6	12	3	3	6	3		3		9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	3	3	3	3		3	3	6	24	6 cases		
King and Queen's Col. of Phys. Ireland, .	21	6	12	6	6	6	6	6	6	6	6		6			6	21	27	6 mo.		
Royal College of Surgeons, London,* . .	21	12	12	6		3	12*	12	6	3					3	27*	9*	33			Cert.
Royal College of Surgeons, Dublin, . .	21	18	18	6	6	3	18	18	6	3	3					18	9	27			
Royal College of Surgeons, Edinburgh, .	21	12	12	6	3	3	3	6 or 12	6	3	3	3			3	6 or 12	6	24	6 cas.	6	Cert.
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	3	3				3	6 or 12	6	24	6 cas.		
For Double Qualification by Royal College of Phys. and Surg. of Edinburgh,	21	12	12	6	3	3	3	6 or 12	6 or 12	3	3	3			3	6 or 12	6 or 12	24	6 cas.	6	Cert.
For Double Qualification by Royal College Phys. Edinburgh, and Faculty of Physicians and Surgeons of Glasgow,	21	12	12	6	3	3	6	6 or 12	6	3	3	3			3	6 or 12	12	24	6 cas.		
Apothecaries' Hall, England, ...	21	12	6	6	3	3	6		12	3	3	6	3		Appr.		27	27	20 cas.		9 mo.
" " Ireland, ...	21	6	12	6	3	3	6	6	6	6	3		3		Appr.	9	18	27	20 cas.		

English Poor-Law Board.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licenses granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

---

* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months Clinical Surgery, six months Clinical Medicine, and twenty-four months Hospital.

MEDICAL SCHOOLS OF SCOTLAND, 1875–76.

WINTER SESSION.

Subjects.	University of Edinburgh.	School of Medicine, Edinburgh.	University of Glasgow.	Anderson's University, Glasgow.	University of Aberdeen.	University of St Andrews.
Anatomy, Systematic and Practical, with Demonstrations.	Professor Turner.	Dr Handyside.	Professor A. Thomson.	Dr A. M. Buchanan.	Professor Struthers.	Professor Pettigrew.
Physiology, or Institutes of Medicine.*	Professor Rutherford.	...	Professor A. Buchanan.	Dr E. Watson.	Professor Ogilvie.	...
Chemistry, and Practical Chemistry.	Professor C. Brown.	Drs Macadam and King.	Professor J. Ferguson.	Professor Dittmar.	Professor Brazier.	Professor Heddle.
Materia Medica and Therapeutics.	Professor Christison.	In Summer.	Professor Cowan.	Dr Morton.	In Summer.	...
Practice of Medicine.	Professor Laycock.	DrHaldane.† Dr Muirhead. Dr Grainger Stewart.	Professor Gairdner.	Dr Wood Smith.	Prof. Smith-Shand.	...
Surgery.	Professor Spence.	Dr Watson.† Mr Jos. Bell. Mr Chiene. Dr John Duncan.	Professor Macleod.¶	Dr Dunlop.	Professor Pirrie.	...
Midwifery.	Professor Simpson.	Dr J.M.Duncan.	Professor Leishman.	In Summer.	Professor Stephenson.	...
Natural Philosophy.	Professor Tait.	Mr Lees.	Professor Sir Wm. Thomson.	Prof. Forbes.	Professor Thomson.	Professor Swan.
Natural History.	Professor Wyville Thomson.	Dr A. Wilson.	Professor Young.	...	Professor Nicol.	Professor Nicholson.
General Pathology.	Professor Sanders.	Dr Wyllie.	...	...	...	...
Clinical Medicine.	Professors Laycock, Maclagan, and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J.M.Duncan.	The Physicians of the Western and Royal Infirmaries.		Drs Smith-Shand, Beveridge, and Fraser.	...
Clinical Surgery.	Professor Lister.	Dr Watson.† Mr Annandale.	The Surgeons of the Western and Royal Infirmaries.		Drs Pirrie, Kerr, and Ogston.	...

---

* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

¶ Dr Cameron also lectures extra-murally on Systematic Surgery, at 151 George Street, between 11 and 12.

MEDICAL SCHOOLS OF SCOTLAND, 1876.

SUMMER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S UNIVERSITY, GLASGOW.	UNIVERSITY OF ABERDEEN.
Practical Anatomy and Demonstrations.	Professor Turner.	Dr Handyside.	Professor A. Thomson.	Dr A. M. Buchanan.	Professor Struthers.
Botany.	Professor Balfour.	...	Professor A. Dickson.	Mr Hennedy.	Professor Dickie.
Materia Medica.	...	Drs Moinet and Craig.	...	...	Professor Harvey.
Midwifery.	...	Drs Keiller * and Macdonald.	...	Dr J. G. Wilson.	Professor Stephenson.
Medical Jurisprudence.	Professor Maclagan.†	Dr Littlejohn.†	Professor Simpson.†	Dr Alexander Lindsay.	Professor Ogston.†
Comparative Anatomy.	Professor Turner.	Dr Handyside.	...	...	Prof. Nicol.
Histology.	Professors Rutherford and Sanders.	Dr Wyllie.	...	...	Professor Struthers.
Practical Chemistry.	Professor Crum Brown.	Drs Macadam and King.	Professor J. Ferguson.	Professor Dittmar.	Prof. Brazier.
Natural Philosophy.	...	Mr Lees.	...	...	...
Natural History.	Professor Wyville Thomson.	Dr A. Wilson.	Professor Young.	...	Prof. Nicol.
Clinical Medicine.	Professors Laycock, Maclagan, and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J. M. Duncan.	The Physicians of the Western and Royal Infirmaries.		Drs Smith-Shand, Beveridge, and Fraser.
Clinical Surgery.	Prof. Lister.	Dr Watson.* Mr Annandale.	The Surgeons of the Western and Royal Infirmaries.		Drs Pirrie, Kerr, and Ogston.

Operative Surgery is taught during the Summer by Messrs Bell and Chiene and Dr Duncan. Instruction in Vaccination is also given at the Royal Public Dispensary, Edinburgh, on Wednesdays and Saturdays at 12, both Summer and Winter, by Dr Husband; at the Faculty Hall, Glasgow, on Mondays at 12, by Dr Dunlop; and at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Tannahill. Medical Psychology and Insanity are taught in Summer by Dr Laycock and Dr J. B. Tuke. The Diseases of Children by * * and the Diseases of the Eye by Dr Argyll Robertson.

* These are not conjoint courses, but separate ones by the gentlemen named.

† Drs Simpson and Ogston deliver their courses only in Winter. Dr Littlejohn gives courses during both the Winter and Summer Sessions. Dr Maclagan also lectures during both Summer and Winter. The Winter Course is chiefly intended for law students, but is open to medical students also.

‡ This is a joint course.

⁂ For additional Summer Courses on special subjects, see the Prospectus of each School.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION WITH THE MEDICAL SCHOOLS OF SCOTLAND.

EDINBURGH.

ROYAL INFIRMARY, including LOCK HOSPITAL. Upwards of 560 Beds. Visits daily from 12 till 2 P.M. Physicians—Drs Laycock, Maclagan, and Sanders, Professors of Clinical Medicine; Professor Simpson (for Diseases of Women); Drs D. R. Haldane, G. W. Balfour, and Grainger Stewart, Clinical Lecturers; Dr J. Matthews Duncan (on Diseases of Women). Assistant Physicians—Drs Claud Muirhead and Brakenridge. Pathologist, * * *

Surgeons—Mr Lister, Professor of Clinical Surgery; Professor Spence; Dr P. H. Watson; Mr Annandale; and Mr Joseph Bell. Assistant Surgeons, Dr J. Duncan and Mr Chiene. Consulting Surgeons, Dr Dunsmure and Dr Gillespie. Ophthalmic Surgeons, Mr Walker and Dr Argyll Robertson. Dental Surgeon, Dr John Smith.

CONVALESCENT HOUSE, Corstorphine. Visiting Medical Officer, Mr Chiene.

CHALMERS HOSPITAL FOR THE SICK AND HURT. 24 Beds for medical and surgical patients. Physician, Dr Halliday Douglas. Surgeon, Dr P. H. Watson.

ROYAL MATERNITY HOSPITAL. 36 Beds; 245 in-patients and 336 out-patients last year. Consulting Physicians, Drs Moir and Graham Weir. Physicians, Drs Keiller, Ziegler, Matthews Duncan, and Professor Simpson. Consulting Surgeon, Dr Dunsmure.

ROYAL HOSPITAL FOR SICK CHILDREN. 60 Beds; average number of out-patients, about 5600. Consulting Physicians, Professor Sir Robert Christison, Dr C. Wilson, Dr Graham Weir, and Dr Matthews Duncan. Consulting Surgeon, Professor Spence. Physicians, Drs R. Peel Ritchie, J. Linton, and J. Dunsmure, jun. Extra Physicians, Drs J. Andrew and J. Cumming. Surgeon-Dentist, Dr Smith. Pathologist, Professor Sanders. Ophthalmic Surgeon, Dr Argyll Robertson.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 12,700 patients annually. Medical Officers, Professors Sanders and Spence, Drs Ritchie, Linton, Husband, D. Wilson, Moinet, and Alex. Sinclair. Physician-Accoucheurs, Drs Keiller, Matthews Duncan, Wilson, and Andrew. Superintendent of Vaccination, Dr Husband. Medical Secretary, Dr Andrew. Clinique daily at 2 P.M. Vaccination on Wednesdays and Saturdays at 12 noon. Apothecary, Mr R. Urquhart.

NEW TOWN DISPENSARY. About 10,000 patients annually. Medical Officers, Drs Cunynghame, Brakenridge, Affleck, Cadell, Dunsmure, Wyllie, Underhill, and Cumming. Physician-Accoucheur, Dr Angus Macdonald. Superintendent of Vaccination, Dr Affleck. Medical Secretary, Dr Cunynghame. Clinique daily at 2 P.M. Vaccination on Tuesdays and Fridays from 12 to 1.

ROYAL ASYLUM FOR THE INSANE. About 660 patients. Physician, Dr Clouston.

EYE INFIRMARY, 6 Cambridge Street, Lothian Road. Surgeons, Benjamin Bell, Esq., F.R.C.S., and Joseph Bell, Esq., F.R.C.S. Assistant-Surgeon, Dr J. Kirk Duncanson. Open daily at 1 P.M. Average number of patients annually, 900.

EYE DISPENSARY, 54 Cockburn Street. About 2000 patients annually. Surgeons, Mr Walker, Dr Wilson, and Dr Argyll Robertson. Open Mondays, Wednesdays, and Fridays, at 1 P.M. Clinical instruction during the summer session.

EAR DISPENSARY, 54 Cockburn Street. Drs T. Keith, Jackson, and Blair Cunynghame, and Mr Chiene. Tuesdays and Thursdays at 12.

EAR DISPENSARY, 6 Cambridge Street, Lothian Road. Surgeon, Dr J. J. Kirk Duncanson. Open Mondays and Thursdays, from 12 to 1 o'clock.

DENTAL DISPENSARY, 38 Cockburn Street. Consulting Surgeon, Professor Spence. Consulting Physician, Dr Sanders. Dental Surgeons, Dr Orphoot, Mr Hutchins, Dr Roberts, Dr Hogue, Mr Knox Chisholm, Mr Swanson. Assistant Dental Surgeon, Mr Chisholm, jun. Daily, 9 to 10 A.M. Average number of patients, 4000 per annum.

GLASGOW.

ROYAL INFIRMARY. 583 Beds. Visits daily at 9 A.M. Physicians, Drs W. T. Gairdner, Perry, M'Laren, M'Call Anderson, and Scott Orr. Physicians to out-patients, Drs Lindsay, Charteris, Wood Smith, and D. C. Black.

Surgeons, Drs E. Watson, Dewar, G. H. B. Macleod, George Buchanan, and Morton. To out-patients, Drs Dunlop, Patterson, R. Watson, Smart, and Cameron. Pathologist, Dr Joseph Coats. Superintendent, Dr M. Thomas.

LOCK HOSPITAL. 81 Beds. Medical Officers, Drs James Dunlop, H. C. Cameron, and A. Paterson. In-patients, 520.

LYING-IN HOSPITAL AND DISPENSARY. 24 Beds; in-patients, 360; out-patients, 700. Physician-Accoucheurs, Drs J. G. Wilson and R. D. Tannahill. Assistant-Physicians, Drs R. T. Paton, G. Miller, H. Miller, and M. Hunter.

UNIVERSITY LYING-IN HOSPITAL, 152 Wellington Street. Medical Officers, Professor Leishman, Physician *ex officio*. Physicians, Drs John Wilson, Gavin P. Tennant, Murdoch Cameron. Dispensary for the Diseases of Women, on Mondays, Wednesdays, and Fridays, at 12 o'clock noon.

ROYAL ASYLUM FOR THE INSANE. About 680 patients. Physician-Superintendent, Dr A. Macintosh. Open to Students on payment of a small fee.

EYE INFIRMARY. 24 Beds; 132 in-patients; 3139 out-patients annually. Physician, Harry Rainy, M.D. Consulting Surgeon, Dr G. Buchanan. Surgeons, Thomas Reid, M.D., and H. C. Cameron, M.D. Assistant Surgeons, Matthew Charteris, M.D., R. Watson, M.D., T. S. Meighan, M.B.

EAR DISPENSARY. About 400 patients annually. Surgeon, Dr Dewar. Open on Tuesdays, Thursdays, and Saturdays, at 3 P.M.

DISPENSARY FOR SKIN DISEASES. About 1400 patients. Physician, Dr M'Call Anderson. Practical Courses in Diseases of the Skin and Ear, during May, June, and July. The Dispensary is open on Mondays and Wednesdays at 4 P.M., and on Tuesdays for Diseases of the Ear at the same hour.

OPHTHALMIC INSTITUTION. Consulting Physician, Dr Charles Ritchie. Surgeon, Professor Macleod. Acting Surgeons, Drs J. R. Wolfe and R. Bell. Assistant Surgeon, Dr Nairne. Open daily from 1 to 3 P.M. A Course of Lectures and Clinical Instruction during the winter and summer months.

GLASGOW DISPENSARY FOR DISEASES OF THE EAR, 241 Buchanan Street. During the Summer Session a Course of Lectures on Aural Surgery, and Practical Instruction in the Treatment of Ear Disease, is given to the Students attending the Clinique. Average number of cases treated, 800 annually. Surgeon and Lecturer, James Patterson Cassells, M.D., M.R.C.S. Lond.

The HUNTERIAN MUSEUM is open to Students of Medicine, for purposes of study, on purchase of the printed catalogue.

ABERDEEN.

ROYAL INFIRMARY. Upwards of 300 Beds. Visits daily at 12 o'clock. Physicians, Drs Smith-Shand, Beveridge, and Fraser.

Surgeons, Drs Kerr, Pirrie, A. Ogston, and Will. Ophthalmic Surgeon, Dr Davidson. Pathologist, Dr Rodger. Dental Surgeon, Mr Williamson.

GENERAL DISPENSARY, LYING-IN AND VACCINE INSTITUTION. 7000 patients annually. Medical Officers, Drs Duncan and Brown; Messrs Smith-Shand, Paterson, Rodger, and Fraser. Physician-Accoucheur, * * * Dental Surgeon, Mr De Lessert. Visits daily at 9.30 A.M. Vaccination every Wednesday at 3 P.M.

LUNATIC ASYLUM. Above 300 patients. Consulting Physician, Dr Macrobin. Resident Physician, Dr Robert Jamieson.

EYE INSTITUTION, General Dispensary Buildings, Guestrow. Surgeon, Dr Davidson. Open daily, except Sunday, at 2.30 P.M. Clinical Instruction on Diseases of the Eye, and the use of the Ophthalmoscope. Average, 600 patients annually.

ARMY MEDICAL DEPARTMENT.

6 WHITEHALL YARD, S.W.

QUALIFICATIONS OF CANDIDATES FOR COMMISSIONS IN THE ARMY MEDICAL SERVICE, WITH A SUMMARY OF THE RULES BY WHICH THE PAY, PROMOTION, AND RETIREMENT OF MEDICAL OFFCERS ARE REGULATED AND DETERMINED.

1. Every candidate desirous of presenting himself for admission to the Army Medical Service must be not under 21 nor over 28 years of age. He must produce a Certificate from the District Registrar, in which the date of birth is stated; or, if this cannot be obtained, an affidavit from one of the parents or other near relative, who can attest the date of birth, will be accepted. He must also produce a certificate of moral character from the parochial minister, if possible.

2. The candidate must make a declaration that his parents are of unmixed European blood, and that he labours under no mental or constitutional disease, nor any imperfection or disability that can interfere with the most efficient discharge of the duties of a medical officer in any climate.[1]

3. The candidate must possess two diplomas or licenses, one to practise Medicine and the other Surgery in Great Britain or Ireland, and must be registered under the Medical Act in force at the time of his appointment.

4. Certificates of registration, character, and age must accompany the declaration when filled up and returned.

5. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—*a.* Anatomy and Physiology, 1000; *b.* Surgery, 1000; *c.* Medicine, including Therapeutics, the Diseases of Women and Children, 1000; *d.* Chemistry and Pharmacy, and a practical knowledge of drugs, 100. [The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside.] The eligibility of each candidate for the Army Medical Service will be determined by the result of the examinations in these subjects only. Examinations will also be held in the following voluntary subjects, for which the maximum number of marks will be—French and German (150 each), 300; Natural Sciences, 300. The knowledge of Modern Languages being considered of great importance, all intending competitors are urged to qualify in French and German. The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography and Botany with special reference to Materia Medica. The number of marks gained in both the voluntary subjects will be added to the total number of marks obtained by those who shall have been found qualified for admission, and whose position on the list of successful

---

[1] His physical fitness will be determined by a Board of Medical Officers, who are required to certify that the candidate's vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia would not be considered a disqualification, provided it did not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes existed. The Board must also certify that he is free from organic or other disease, and from constitutional weakness or other disability likely to unfit him for military service in any climate.

competitors will thus be improved in proportion to their knowledge of modern languages and natural sciences.

6. After passing this examination, every candidate will be required to attend one entire course of practical instruction at the Army Medical School on—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

7. At its conclusion, the candidate will be required to pass an examination on the subjects taught in the School. If he give satisfactory evidence of being qualified for the practical duties of an Army Medical Officer, he will be eligible for a commission as Surgeon.

8. During the period of his residence at the Army Medical School each candidate will receive an allowance of 5s. per diem with quarters, or 7s. per diem without quarters, to cover all costs of maintenance; and he will be required to provide himself with uniform (viz., the regulation undress uniform of a Surgeon, but without the sword).

9. All candidates will be required to conform to such rules of discipline as the Senate may from time to time enact.

The pay, promotion, and retirement of Medical Officers of the Army are regulated by the following rules:—

1. The daily rates of pay of Medical Officers of the Army are as follows:—Director-General, special; Surgeon-General £2, after twenty-five years' service £2, 5s., after thirty years' service £2, 7s., after thirty-five years' service £2, 10s.; Deputy Surgeon-General £1, 10s., after twenty-five years' service £1, 12s., after thirty years' service £1, 15s., after thirty-five years' service £1, 17s.; Surgeon-Major 17s. 6d., after fifteen years' service £1, after twenty years' service £1, 4s., after twenty-five years' service £1, 7s.; Surgeon, on appointment 10s., after five years' service 12s. 6d., after ten years' service 15s., after fifteen years' service 17s. 6d. Charge pay: the principal medical officer of an army in the field, of 10,000 men and upwards, £1 daily; of 5000 men and upwards, 15s. daily; of less than 5000, 10s. daily. Or, the principal medical officer of a colony where the number of commissioned officers and enlisted men is 1500 and upwards, 5s. daily.

2. A Surgeon must pass such examination as the Secretary of State for War may require, before he can be promoted to the rank of Surgeon-Major.

3. A vacancy in the rank of Surgeon-Major, occasioned by death or promotion, shall, unless it be expedient that it be otherwise filled, be given to the senior qualified Surgeon of the department. If a vacancy arise from any other cause it shall be filled by a qualified Surgeon, recommended by the Commander-in-Chief and with the approval of the Secretary of State. In cases of distinguished service, however, a Surgeon, if qualified, may be promoted without reference to seniority.

4. All promotion from the rank of Surgeon-Major to that of Deputy Surgeon-General, and from the rank of Deputy Surgeon-General to that of Surgeon-General, shall be given by selection for ability and merit.

5. Services of medical officers upon the West Coast of Africa shall be voluntary, except for those who enter the Department especially for African service.

6. Each year or portion of a year shall be allowed to reckon double towards retirement, but not towards increased pay, provided that the officer shall serve at least 12 months on the West Coast of Africa.

7. For each year's service on the Coast, a medical officer shall be entitled to a year's leave at home, and for every additional period beyond a year he shall have an equivalent extension of leave.

8. Officers who may enter the Army Medical Department expressly for service on the West Coast of Africa, and those who may volunteer for that service from the General Department, after this date, shall receive double pay while actually serving on the Coast.

9. Officers who enter the Department expressly for service on the West Coast of Africa shall pass the same examination as other medical officers, but

they may be admitted at a later age. They will be required to complete three years' actual service on the Coast, after which they shall be eligible for general service. If it shall be certified by a Medical Board that any such officer is unfit for further duty on the West Coast of Africa, he may be employed elsewhere, notwithstanding that he may have served for less than three years on the Coast.

10. Good Service Pensions shall be awarded to the most meritorious medical officers of the army, under such regulations as shall be from time to time determined. Six of the most meritorious medical officers of the army shall be named Honorary Physicians, and six Honorary Surgeons to the Queen.

11. Medical officers shall have the right to retire on half-pay after 20 years' service; medical officers of the rank of Surgeon-Major or Surgeon, shall be placed on the retired list at the age of 55, and all Surgeons-General and Deputy Surgeons-General at the age of 65 years.

12. A medical officer placed on half-pay by reduction of establishment, or on the report of a medical board in consequence of wounds or ill-health caused in and by the discharge of his duties, or on account of age (under Rule 11), shall be entitled to half-pay at the following daily rates:—Surgeon-General, after thirty years' service, £1, 17s. 6d.; twenty-five years, £1, 13s. 6d.; twenty years, £1, 10s. Deputy Surgeon-General, after thirty years, £1, 5s. 6d.; twenty-five years, £1, 2s. 6d.; twenty years, £1, 1s. Surgeon-Major, after twenty-five years, £1; twenty years, 16s. 6d.; fifteen years, 13s. 6d.; ten years, 11s. Surgeons, after ten years, 10s.; after five years, 8s.; under five years, 6s.

13. The rate of half-pay awarded to officers retiring for their own convenience, after twenty years' service on full pay, shall not exceed one-half of their full pay at the time of retirement.

14. Every medical officer who shall retire after a service upon full-pay of twenty-five years, shall be granted a rate of half-pay equal to seven-tenths of the daily pay he may have been in receipt of when thus retiring or proceeding on half-pay, provided he shall have served three years in his rank or shall have served abroad for ten years in all ranks, or for five years with an army in the field. An officer of twenty-five years' full-pay service, whose service does not fall within any of these conditions, shall be entitled to only seven-tenths of the daily pay he was in receipt of prior to his last promotion.

15. A medical officer placed on half-pay from any other cause shall be allowed only a temporary rate of half-pay (not exceeding the rates specified in Rule 12) for such period and at such rate as the Secretary of State for War shall decide, with reference to the services rendered to the public by such officer.

16. Medical officers of twenty years' full-pay service, placed temporarily on half-pay under Rule 15 on account of ill-health, may, however, be allowed to retire on permanent half-pay at the rate fixed by Rule 12, if after one year on half-pay they shall be reported by a medical board to be permanently unfit for further service.

17. Medical officers are entitled to quarters, fuel, and light, free of charge, or allowances in lieu thereof; also to an allowance for a servant when not provided with a soldier to act as such.

18. These allowances are determined by the relative rank of medical officers, which is as follows:—Surgeon-General after three years' service, or with an army in the field, ranks as Major-General; Surgeon-General under three years' service ranks as Brigadier-General; Deputy Surgeon-General after five years' service as such ranks as Colonel; Deputy Surgeon-General under five years ranks as Lieutenant-Colonel; Surgeon-Major of twenty years' service ranks as Lieutenant-Colonel; Surgeon-Major under twenty years' service ranks as Major; Surgeon of six years' service ranks as Captain; Surgeon under six years' service ranks as Lieutenant.

19. Forage will be granted to medical officers for such number of horses as are necessarily kept by them for duty. [The rates of pay of British Medical Officers serving in India are the same as those sanctioned for the Indian Medical Service.]

ARMY MEDICAL SCHOOL.

ROYAL VICTORIA HOSPITAL, NETLEY.

President of the Senate.—Sir William M. Muir, K.C.B., M.D., Director-General of the Army Medical Department.

Members of the Senate.—J. Fayrer, M.D., C.S.I., Physician to the Indian Council; Sir Alexander Armstrong, M.D., K.C.B., F.R.S., Director-General Naval Medical Department; The Principal Medical Officer, Royal Victoria Hospital; Surgeon-General T. Longmore, C.B., Professor of Military Surgery; Surgeon-General W. C. Maclean, C.B., Professor of Military Medicine; William Aitken, M.D., F.R.S., Professor of Pathology; E. A. Parkes, M.D., F.R.S., Professor of Military Hygiene; Dr F. S. B. F. De Chaumont, M.D., Staff-Surgeon, Conjoint-Professor of Hygiene.

Assistant Professors.—Staff-Surgeon-Majors T. H. Porter, W. H. Webb, J. D. Macdonald, M.D., F.R.S., R.N., and Surgeon F. H. Welch, F.R.C.S.L.

Candidates for Commissions in the Army, and in the Queen's Indian Service, proceed to Netley after passing the Examination at London. At Netley they attend the Medical and Surgical Practice of the Royal Victoria Hospital, and learn the system and arrangements of Military Hospitals. During four months they attend the lectures given by the Professors and Assistant-Professors, and go through a course of practical instruction in the Hygienic Laboratory and Microscopical Room. The lectures and practical instruction are intended to explain the specialities of Military Medical Practice, attention being directed to gunshot and other wounds, surgical arrangements in the field during action and sieges, means of transport, field hospitals, tropical diseases and their means of investigation, service in India and in the various colonies, the sanitary arrangements in peace and war, and the means of carrying out the sanitary regulations. Every opportunity is taken of practising operations on the dead body, and practical points of a like kind.

INDIAN MEDICAL SERVICE.

INDIA OFFICE, WHITEHALL, S.W.

All natural-born subjects of Her Majesty between twenty-two and twenty-eight years of age at the date of the examination, and of sound bodily health, may be candidates for the appointment of Surgeon in Her Majesty's Indian Medical Service. They may be married or unmarried.

They must subscribe and send in to the Military Secretary, India Office, Westminster, proofs of their qualification similar to those required by the Army Medical Department, at least a fortnight before the date fixed for the examination.

The regulations and subjects for examination are the same as for the Army Medical Department, with the addition of Hindustani to the voluntary subjects. Passage allowance to India on appointment will be given, or a passage provided. When passages are provided on board the Indian troop-ships, a charge for messing will be made at the rate laid down in the Royal Passage Warrant of 1865. Pay at 10s. a day will be allowed from the date of passing final examination at the Army Medical School.

Indian allowances and time of service for pension will reckon from date of arrival in India. The period of residence at the Army Medical School will reckon as service for the full-pay pension only.

The duties will be those hitherto performed by the medical officers of the East India Company's Service, with the exception of those relating to European troops.

Surgical instruments are provided in India by the Government for the use of medical officers.

When Surgeons have served five or more years they will be examined in the following manner as a test for promotion:—

A series of printed questions, prepared by the Surgeon-General of the Presidency, will be sealed and sent to the principal medical officers of stations where Surgeons may be eligible for examination. It will be the duty of the principal medical officer of the station to deliver these sealed questions to the Surgeons, and to see that they are answered without the assistance of books, notes, or communication with any other person. The answers are to be signed, and delivered sealed to the principal medical officer, who is to send them, unopened, to the Surgeon-General of the Presidency, together with a certificate from the Surgeon-Major of the regiment, or other superior medical officer, that the Surgeon has availed himself of every opportunity of practising surgical operations on the dead body.[1]

The Surgeon will also be required to transmit, together with his answers to the Surgeon-General of the Presidency, a medico-topographical account of the station where he may happen to be at the time, or of some other station where he may have been resident sufficiently long to enable him to collect the necessary information for such a report. Failing this, he will send a medico-statistical report of his regiment for a period of at least twelve months.

If the Surgeon-General of the Presidency is satisfied with the replies to the questions, and with the certificates and medico-topographical or statistical report, the Surgeon will be held qualified for promotion.

The Surgeon will thus be subjected to three separate examinations within the first ten years of his service, each examination having a definite object. The first, to ascertain, previous to his admission into the service as a candidate, his scientific and professional education, and to test his acquirements in the various branches of professional knowledge; the second, after having passed through a course of special instruction in the Army Medical School, to test his knowledge of the special duties of an army medical officer; and the third, previous to his promotion, to ascertain that he has kept pace with the progress of medical science.

The promotion of Surgeons will be regulated by length of service, and not, as heretofore, by succession to vacancies in a fixed establishment of officers of the higher grades.

Surgeons of twelve years' service who shall have passed the prescribed examination in professional subjects, will be promoted to the rank of Surgeon-Major.

In cases, however, of emergency, or when the good of the service renders such alteration desirable, it shall be competent for the Secretary of State for India in Council to shorten the several periods of service above mentioned, in such manner as he shall deem fit and expedient.

With a view to maintain the efficiency of the service, all medical officers of the rank of Surgeon-Major shall be placed on the retired list when they shall have attained the age of fifty-five years, and all Surgeons-General and Deputy Surgeons-General when they shall have attained the age of sixty-five years. But as respects Surgeons-Major who entered the service prior to the 13th January 1860, this rule shall be relaxed, and an officer who has attained the age of 55 years without having obtained the rank of Deputy Surgeon-General shall be permitted to remain in the service for three years more, on his perfect competency and fitness being certified in such manner as the Secretary of State for India may direct. In any special case where it would appear to be for the good of the service that the officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

With a view of promoting the efficiency of the service, it has been further determined that the tenure of office by a Deputy Surgeon-General shall, as in the case of Surgeons-General, be limited to five years; officers being, however, if not disqualified by age, eligible either for employment for a second tour of duty in the same grade, or for employment in the higher grade of Surgeon-General by promotion thereto.

The rank of Surgeon-General and Deputy Surgeon-General conferred upon officers of the Indian Medical Service under the royal warrant of 10th May 1873 is to be considered as substantive rank.

---

[1] The Surgeon may see this certificate before it is sent to the Surgeon-General.

These officers, on vacating office at the expiration of the five years' tour of duty, will be permitted to draw *in India* respectively an unemployed salary of 1200 rupees per mensem in the former, and 900 rupees in the latter case, for a period of six months from the date of their vacating office, after which they will be placed while unemployed on the rate of pay laid down for officers of corresponding rank in Europe.

NAVY MEDICAL DEPARTMENT.

Admiralty, 9 *New Street*, *Spring Gardens*, *S.W.*

REGULATIONS RELATIVE TO THE EXAMINATION OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL SERVICE OF THE ROYAL NAVY.

Candidates for admission to the Naval Medical Service must subscribe and send to the Medical Department, Admiralty, proofs of their qualifications, etc., similar to those required by the Army Medical Department. The regulations and subjects for examination are also similar.

After passing the examination, every candidate will be required to attend one entire course of practical instruction in the Medical School at Netley, on —(1) Hygiene; (2) Clinical and Naval and Military Medicine; (3) Clinical and Naval and Military Surgery; (4) Pathology of Diseases and Injuries incidental to Naval and Military Service.

At its conclusion, the candidate will be required to pass an examination on the subjects taught in the School. If he give satisfactory evidence of being qualified for the practical duties of a Naval Medical Officer, he will be eligible for a commission as Surgeon.

During the period of his residence at the Netley Medical School, each candidate will receive an allowance of 5s. per diem with quarters, or 7s. per diem without quarters, to cover all cost of maintenance; and he will be required to provide himself with uniform—viz., the regulation undress uniform of a Surgeon, but without the sword.

The full and half pay of Naval Medical Officers is in accordance with the following scale:—Full-pay: Inspector-General of Hospitals and Fleets—On promotion or under twenty-five years' service, £2, 5s.; ditto or above twenty-five years' service, £2, 6s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £2, 10s. Deputy Inspector-General of Hospitals and Fleets—On promotion or under twenty-two years' service, £1, 11s.; ditto or above twenty-two years' service, £1, 12s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 18s. Fleet Surgeon—On promotion or under twenty years' service, £1, 3s.; ditto or above twenty years' service, £1, 4s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 10s. Staff Surgeon—On promotion or under fourteen years' service, 18s.; ditto or under seventeen years' service, £1; and for each additional year of service 1s. a day more until the maximum is reached—namely £1, 2s. Surgeon —Under five years' service, 11s.; under eight years' service, 12s. 6d.; under eleven years' service, 14s.; under fourteen years' service, provided he passed his examination for Staff Surgeon while under ten years' service, 15s. 6d.; above fourteen years' service, ditto, 17s. Half-pay: Surgeon —Under five years' service, 6s.; under eight years' service, 8s.; under eleven years' service, 10s.; above eleven years' service, provided he passed his examination for Staff Surgeon while under ten years' service, 11s. Staff Surgeon —On promotion or under fourteen years' service, 11s.; ditto or under seventeen years' service, 13s.; ditto or above seventeen years' service, 14s. Fleet

Surgeon—On promotion or under twenty years' service, 16s.; ditto or above twenty years' service, 16s. 6d.; and for each additional year of service 6d. a day more until the maximum is reached—namely, 18s. 6d. Deputy Inspector-General of Hospitals and Fleets—On promotion or under twenty-two years' service, £1, 1s.; ditto or above twenty-two years' service, £1, 2s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 7s. Inspector-General of Hospitals and Fleets—On promotion or under twenty-five years' service, £1, 11s.; ditto or above twenty-five years' service, £1, 12s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 18s.

PRELIMINARY EXAMINATIONS for the DIPLOMAS of the ROYAL COLLEGES of PHYSICIANS and SURGEONS of EDINBURGH, during the Year 1875–76.

I. The *Preliminary Examination* in *General Education* for the Double Qualification in Medicine and in Surgery conferred conjointly by the Royal Colleges of Physicians and Surgeons, and also for the separate Diploma of each College, for 1875–76, will embrace the following subjects:—

1. *English Language*, including Grammar and Composition.
2. *Arithmetic*, including Vulgar and Decimal Fractions.
3. *Algebra*, including Simple Equations.
4. *Geometry;* First Two Books of Euclid.
5. *Latin;* Cæsar de Bello Gallico, Book IV., Æneid of Virgil, Book VIII.
6. One of the following subjects at the option of the candidate: (1.) *Greek;* (2.) *French;* (3.) *German;* (4.) *Natural Philosophy*, including Mechanics, Hydrostatics, and Pneumatics.

II. In *Latin*, besides translation from either of the books prescribed at the option of the candidate, the examination will include grammar, translation of a passage from an unprescribed author, and translation of a passage from English into Latin, the more difficult words being supplied.

In *Greek*, the books prescribed are, Herodotus' History, Book I., and Homer's Iliad, Book II. Besides translation from both these, parsing, derivation of English words from Greek, and translation of a passage from English into Greek are required.

In *French*, the book prescribed is Molière, Le Malade Imaginaire. Parsing and translation from English into French are also required.

In *German*, the book prescribed is Schiller's Wilhelm Tell. Parsing and translation from English into German are also required.

Natural Philosophy, as defined above, corresponds to *Mechanics*, in the preliminary examination of the University of Edinburgh.

III. The examinations will be held on the following days, beginning each day at twelve o'clock:—Tuesday, 19th October, and Wednesday, 20th October, 1875; Tuesday, 18th April, and Wednesday, 19th April, 1876; and Saturday 22d July, and Monday, 24th July, 1876. On each occasion the subjects of the first day's examination will consist of English, Latin, and Geometry; and those of the second day, of Arithmetic, Algebra, and the optional subjects.

Candidates are required to give in their names to the officer of either College not less than two days prior to the day of examination.

Each candidate shall pay a fee of ten shillings previous to the examination. In the event of the candidate being unsuccessful, he shall be allowed to appear again for examination without paying a fee.

IV. The examinations will be conducted according to the following regulations:—

1. The competence of the candidate will be ascertained by means of written exercises. Candidates whose success amounts to a certain minimum will be admitted.

2. Each candidate must bring with him a card having his name, place of birth, and an address that will find him by post distinctly written on it.

3. The exercises on each of the subjects must, in every case, be written on separate papers; and the candidate must attach his signature and his address to each sheet of his written paper before giving it in to those who superintend the examination.

4. Books must not be employed, nor may assistance be given by one candidate to another, during the examination. Those who violate this necessary rule shall forfeit, for the season, the right of being examined.

5. The decision of the examiners will be intimated to each candidate as soon as possible. Those who pass the examination will receive certificates to that effect. In the case of those who are successful in part of the examination only, the subjects in which they have passed will be recorded, and they will not be again examined in the branch or branches in which they have been successful.

V. A certificate of having passed all the required subjects of the above examination, entitles the possessor, on commencing medical study, to be registered as a Medical Student in the form required by the regulations of the General Medical Council, and, provided the candidate passes in three books of Euclid, is also admitted *pro tanto* by the Medical Faculty of the University of Edinburgh as an equivalent for the corresponding subjects of their preliminary examination for intending Graduates in Medicine.

A list of Examining Boards in the United Kingdom and in the Colonies, whose certificate is received by the Royal Colleges, on the recommendation of the General Medical Council, as equivalent to the above, will be found in the Appendix to the Regulations of the Colleges.

WILLIAM HENRY LOWE, *President Royal College of Physicians.*
JAMES SIMSON, *President Royal College of Surgeons.*

EDINBURGH, *July* 1875.

Frequent inquiries having been made as to the exact nature of the Preliminary Examination for the Diploma of the Royal Colleges of Physicians and Surgeons of Edinburgh, the Secretaries have supplied the following papers, which were given out at the examination of 24th and 26th of July last.

FIRST DAY.—COMPULSORY.

ENGLISH.

The candidate is required:—

1. To write a passage dictated by the examiner, with strict attention to spelling and punctuation.

2. To give the meaning and derivation of at least eight of the following words:—

Constitutional, Advocate, Preventive, Introduce, Concede, Inadequate, Composition, Reference, Reverential, Repetition, Confidential, Postpone.

3. To explain the following passage, and parse fully from "but" to "owner."

"So Gareth past with joy; but, as the cur
Pluckt from the cur he fights with, ere his cause
Be cool'd by fighting, follows, being named,
His owner, but remembers all, and growls,
Remembering, so Sir Kay beside the door
Muttered in scorn of Gareth."

4. To write a short essay on any of the following subjects:—

"The Prince of Wales' visit to India;" "Wimbledon and rifle competitions;" or "Our sea-girt island, and new inventions for crossing the channel more easily and comfortably."

[The essay need not exceed a folio page.]

GEOMETRY.

Euclid, Books 1 *and* 2.

1. If two triangles have two sides of the one equal to two sides of the other, each to each, then if the third sides are equal the contained angles are equal, and if the third sides are unequal, the contained angles are unequal.

2. If a straight line falling upon two other straight lines makes the alternate angles equal, those straight lines shall be parallel.

3. Parallelograms upon the same base and between the same parallels are equal.

4. If a straight line be bisected and produced to any point, the rectangle contained by the whole line thus produced and the part of it produced, together with the square of half the line bisected, is equal to the square of the line made up of the half and the part produced.

5. To describe a square which shall be equal to a given rectilineal figure.

Euclid, Book 3.

1. If from a point within a circle there be drawn three equal straight lines to the circumference, that point is the centre of the circle.

2. The opposite angles of a quadrilateral inscribed in a circle, are equal to two right angles.

3. If from a point without a circle two straight lines be drawn, one of which touches and the other cuts the circle, the rectangle by the cutting line, and the part of it without the circle, is eqnal to the square of the line which touches the circle.

LATIN.

I.

Translate:—

Ille et nefasto te posuit die,
Quicunque primum, et sacrilega manu
Produxit, arbos, in nepotum
Perniciem, opprobriumque pagi.

Illum et parentis crediderim sui
Fregisse cervicem, et penetralia
Sparsisse nocturno cruore
Hospitis: ille venena Colcha,

Et quidquid usquam concipitur nefas,
Tractavit, agro qui statuit meo
Te triste lignum, te caducum
In domini caput immerentis.

Decline *ille*, *ipse*, and *is*. Parse *posuit*,—give the third person singular of the imperfect indicative active and passive—also of the present future, active, and the present subjunctive passive. Decline *quicunque*. Parse *sparsisse*. Compare *triste*,—give a substantive derived from it. Give derivation of *caducum*.

Numerical value, 50.

II.

Habenda ratio valetudinis: utendum exercitationibus modicis: tantum cibi et potionis adhibendum, ut reficiantur vires, non opprimantur. Nec vero corpori soli subveniendum est, sed menti atque animo multo magis, nam hæc quoque, nisi tamquam lumini oleum instilles, exstinguuntur senectute, et corporo quidem defatigatione, et exercitatione ingravescunt: animi autem exercitando levantur, nam quos ait Cæcilius—*comicos stultos senes:* hos significat credulos, obliviosos, dissolutos: quæ vitia sunt non senectutis, sed inertis, ignavæ, somniculosæ senectutis, ut petulantia, ut libido, magis est adolescentium, quam senum; nec tamen omnium adolescentium, sed non proborum: sic ista senilis stultitia (quæ deliratio appellari solet) senum levium est, non omnium.

Parse *soli*. What case is it, and why? decline it. Do you know any other Latin words spelt the same way? Parse *hæc*. What does it refer to? Parse *subveniendum est*. Compare *magis*. Decline *vires* in the singular and plural.

Numerical value, 50.

III.—*Passage from an unprescribed Author.*

Nunc autem ad te confugi, exagitatus a cuncta Graecia, tuam petens amicitiam: quam si ero adeptus, non minus me bonum amicum habebis, quam fortem inimicum ille (*scil.* pater tuus) expertus est. Ea autum rogo, ut de his rebus, de quibus tecum colloqui volo, annum mihi temporis des, eaque transacto, me ad te venire patiaris.

Parse *ero adeptus*. Parse *expertus est*. Parse *colloqui*. Parse *patiaris*.

Numerical value, 50.

IV.—*Render in correct Latin the following Sentence:—*

It is the part of a good man to show the way to him that wanders, and point to him his road. It is also the part of a good man to confess his sins to God, and own his mistakes to men. But he does wickedly, who denies aid to his country, or refuses a legacy to the man to whom the testator hath left it.	Sum bonus vir monstro via errans, et ostendo is iter. Sum etiam bonus vir confiteor peccatum Deus, et fateor error homo. At improbe facio, qui nego opis patria, aut inficior legatum homo qui legator relinquo.

Numerical value, 50.

In order to pass, the candidate must have done one or other, but not both, of Nos. I. and II.; also Nos. III. and IV.; and have obtained at least 100 marks.

SECOND DAY.—COMPULSORY.

ARITHMETIC.

1. A joint stock concern consists of 1714 shares. The total assets amount to £54,179; what is the value of 120 shares?

2. Find the number by which £1, 13s. 6d. must be multiplied so as to produce £149, 1s. 6d.

3. Find the greatest common measure of 1415 and 1875; and the least common multiple of 231 and 275.

4. If a shopkeeper use a false weight of 15¾ oz. for a pound, what will a true cwt. appear to weigh?

5. Add together ·145 of 7s. 6d., ·135 of 6s. 8d., and ·055 of 15s. 6d., and express the sum as the vulgar fraction of a £.

6. A person receives two separate dividends on a bankrupt estate. The first dividend at the rate of 7s. in the pound yields him £510, 3s. How much does the second dividend at the rate of 5s. 6d. in the £ yield him? and what is his final loss?

7. The linear *metre* is 39·37 in. The *litre* is the cubic *decimetre*. Express the *litre* as the decimal of a cubic foot.

8. Given that 1000 oz. av. is the weight of a cubic foot of water, and that a gallon is 10 lbs. av. Show that a quart exceeds a *litre* by about 8 cubic inches.

N.B.—The working of each question, as well as the answer, must be given in full.

ALGEBRA.

1. Find the difference between $(4a + 3)x^3 + bx^2 + c$ and the product of $(4a + 3)x + b$ and $x^2 + c$.

2. Divide $6a^4 - 13a^3b - 4a^2b^2 + 5ab^3 - 4b^4$ by $2a^2 - 3ab - 4b^2$.

What is the numerical value of the quotient when $a = -b$ and $a^2 + b^2 = 1$?

3. Prove that the sum of the squares of two numbers is greater than twice their product.

4. Express as single fractions in their lowest terms:—

(1.) $\frac{x}{x^2 - y^2} + \frac{y}{y^2 - x^2}$.

(2.) $\frac{1}{2a - 4b} + \frac{1}{3a - 6b} + \frac{1}{4a - 8b} + \frac{2\frac{1}{6}b}{a^2 - 4b^2}$.

5. Solve the following equations:—

(1.) $\frac{1}{3}(x - \frac{2}{5}) - \frac{1}{5}(x + \frac{2}{3}) = \frac{2}{3}$.

(2.) $\frac{a - x}{} = \frac{x}{a - x} + \frac{b}{x}$.

6. A person has £10,000 invested, part at 4 per cent., part at 5. The total income from both sources is £412, 6s. How much is invested at 5 per cent.?

7. Find the greatest common measure of $8x^2 + 14x - 15$ and $8x^3 + 30x^2 + 13x - 30$.

N.B.—The working of each question, as well as the answer, must be given in full.

SECOND DAY.—OPTIONAL.

GREEK.

Translate:—

I. (*Herodotus, Book I.*)

'Αλυάττης δὲ ὁ Λυδὸς τὸν πρὸς Μιλησίους πόλεμον διενείκας, μετέπειτα τελευτᾷ, βασιλεύσας ἔτεα ἑπτὰ καὶ πεντήκοντα. ἀνέθηκε δε, ἐκφυγὼν τὴν νοῦσον δεύτερος οὗτος τῆς οἰκίης ταύτης, ἐς Δελφοὺς κρητῆρά τε ἀργύρεον μέγαν, καὶ ὑποκρητηρίδιον σιδήρεον κολλητὸν, θέης ἄξιον διὰ πάντων τῶν ἐν Δελφοῖσι ἀναθημάτων· Γλαύκου τοῦ Χίου ποίημα, ὃς μοῦνος δὴ πάντων ἀνθρώπων σιδήρου κόλλησιν ἐξεῦρε.

Τελευτήσαντος δὲ 'Αλυάττεω, ἐξεδέξατο τὴν βασιληΐην Κροῖσος ὁ 'Αλυάττεω, ἐτέων ἐὼν ἡλικίην πέντε καὶ τριήκοντα· ὃς δὴ 'Ελλήνων πρώτοισι ἐπεθήκατο 'Εφεσίοισι. ἔνθα δὴ οἱ 'Εφέσιοι πολιορκεόμενοι ὑπ' αὐτοῦ, ἀνέθεσαν τὴν πόλιν τῇ 'Αρτέμιδι, ἐξάψαντες ἐκ τοῦ νηοῦ σχοινίον ἐς τὸ τεῖχος.

Parse τελευτᾷ. Decline ἔτεα. Parse εκφυγὼν. Parse εξεῦρε. Parse ἐξεδέξατο. Parse ἀνέθεσαν.

Numerical value, 50.

Translate:—

II. (*Homer, Ilias, Lib. II.*)

'Ατρείδη, νῦν δή σε, ἄναξ, ἐθέλουσιν 'Αχαιοὶ
Πᾶσιν ἐλέγχιστον θέμεναι μερόπεσσι βροτοῖσιν·
Οὐδέ τοι ἐκτελέουσιν ὑπόσχεσιν, ἥνπερ ὑπέσταν,
'Ενθάδε τοι στείχοντες ἀπ' Ἄργεος ἱπποβότοιο,
Ἴλιον ἐκπέρσαντ' εὐτείχεον ἀπονέεσθαι·
Ὥστε γὰρ ἢ παῖδες νεαροὶ, χῆραί τε γυναῖκες,
'Αλλήλοισιν ὀδύρονται οἶκόνδε νέεσθαι.
Ἦ μὴν καὶ πόνος ἐστὶν ἀνιηθέντα νέεσθαι.
Καὶ γάρ τίς θ' ἕνα μῆνα μένων ἀπὸ ἧς ἀλόχοιο
'Ασχαλάα, παρὰ νηῒ πολυζύγῳ, ἥνπερ ἄελλαι
Χειμέριαι εἰλέωσιν, ὀρινομένη τε θάλασσα.

Parse ἐλέγχιστον. Parse ὑπόσχεσιν. Parse ὑπέσταν. Parse ἐκπέρσαντ'.

Numerical value, 50.

III.

Derive the following words :—

Kleptomania, Mesopotamia, Apocrypha, Agony, Euthanasia, Haemorrhage, Asthenic, Archaeology, Aphonia, Glossary, Deuteronomy, Cynic, Panoply, Synchronous, Schism, Symphony.—Numerical value, 50.

IV.

Translate into Greek the following :—

Theocritus having been asked why he did not write, said : because when I wish to write I cannot, and when I can I do not wish.—Numerical value, 50.

[In order to pass, the candidate must have obtained at least 120 marks.]

FRENCH.

1. Translate into English :—

Ses soldats près de lui, d'un œil plein de courroux,
Regardaient ces vaincus échappés à leurs coups.
Les captifs en tremblant, conduits en sa présence,
Attendaient leur arrêt dans un profond silence.
Le mortel désespoir, la honte, la terreur,
Dans leurs yeux égarés avaient peint leur malheur.
Bourbon tourna sur eux des regards pleins de grâce,
Où régnaient à la fois la douceur et l'audace.
" Soyez libres, dit-il ; vous pouvez désormais
Rester mes ennemis, ou vivre mes sujets.
Entre Mayenne et moi reconnaissez un maître ;
Voyez qui de nous deux a mérité de l'être :
Esclaves de la Ligue, ou compagnons d'un roi,
Allez gémir sous elle, ou triomphez sous moi :
Choisissez."

2. Parse the following words, giving the principal tenses (first person singular), and the present and past participles :—*avaient*, *peint*, *soyez*, *vivre*, *allez*, *choisissez*.

3. Give the plural of the following words :—*œil*, *mortel*, *vœu*, *canal*, *bal*, *beau*, *jeu*.

4. Translate into French :—

This hat is mine ; but as I have several I will lend (*prêter*) it to you, provided you promise to return it to me to-morrow morning.

NATURAL PHILOSOPHY.

1. Explain the conditions of equilibrium of three forces which act at a point in different directions. If two of the forces are 8 lbs. and 15 lbs., acting at right angles to one another, what is the third force?

2. A uniform rod 10 feet long rests on two props, placed respectively at 2 and 3 feet from its extremities. Compare the pressure on the props. What length of a similar rod must be hung vertically from one end, so that the pressure may become equal?

3. Describe a system of pulleys for which the power shall be less than half the weight. When a man draws himself up by means of a rope passing over a fixed pulley and fastened to his person, what force has he to exert?

4. Explain the phenomena of attraction in general, and of gravitation in particular. What is the *law* of attraction of the planets towards each other ; and what prevents their coming together?

5. If a closed conical vessel be *filled* with water and placed on a table to rest on its base, what are the pressures on the inner and outer surfaces of the base respectively? If a portion of the water be replaced by a cork, what change of pressure is produced in the two cases?

6. Define specific gravity. A piece of wood weighs 4 lbs. in air, and a piece of lead weighs 4 lbs. in water. The wood and lead together weigh 3 lbs. in water. Find the specific gravity of the wood.

7. Explain the action of the siphon. If a quantity of air were admitted to occupy part of the circuit, what would you expect to happen, and why?

Part Fourth.

PERISCOPE.

NOTES ON PHYSIOLOGY AND EXPERIMENTAL PATHOLOGY.

By John G. M'Kendrick, M.D., F.R.S.E.

I. Tubercle.—In the *Archiv für Wissenschaftliche und practische Thierheilkunde* of C. F. Müller and J. W. Schütz, Bd. I., Ht. 1, Professor Gerlach of Berlin details an elaborate experimental research on the question, Whether tubercular matter, or the flesh of tubercular animals, can communicate or excite tubercular disease if taken as food? This question is, in certain respects, distinct from that of the inoculation of tubercle, on which so much research has been expended. The method employed by Gerlach was to introduce into the stomach of the animal one or two doses of tubercular matter. The effects, if any, were observed; and if the animal did not die from these, it was killed some weeks or months after the administration of the substance, and a post-mortem examination was made. The weak point of the paper appears to be that no details are given as to the hygienic conditions under which the animals lived while under observation. It is well known that tubercular formations are very common among domestic animals kept in close confinement. So great is the importance of the inquiry, not only from a hygienic point of view, but also as relating to the ætiology of tubercle, and its transmissibility in the human race, as to render a repetition of these experiments desirable. The conclusions arrived at by Professor Gerlach may be summarized as follows:—

1. There is a specific virulent material in tubercle, and many of the symptoms of tubercular disease are due to the absorption of this virus.

2. This virus exists in tubercle in all its stages, but apparently in greater intensity in cheesy masses. It is found in recently formed tubercle, and in miliary tubercle.

3. The infection begins first in the mucous membrane of the mouth, and if the tubercular matter be in contact a sufficient length of time with the mucous membrane of the alimentary canal, it may communicate the disease to the whole lymphatic system.

4. While tubercular disease has special characters in different animals, all tubercular matter, when introduced into the alimentary canal from one species to another, is more or less virulent.

5. The tubercular matter of birds, especially that of the common hen, is very virulent, and is identical in its action with that of mammalia.

6. The fibrous tubercle of horses, without a trace of cheesy formation, is just as infectious as the miliary tubercle of cattle.

7. The flesh of tubercular animals is also infectious, though in a much less degree than tubercle itself.

8. Tubercular material cooked for a quarter to half an hour, is still infectious, though in a much less degree than that not cooked.

9. The effects of poisoning by tubercular matter taken into the alimentary canal are irritation of the mucous membrane both of the alimentary and respiratory tracts, enlargement and tenderness of the lymphatic glands, enlargement of the bronchial glands, and the formation of tubercle in the lungs and other organs.

Gerlach used in these experiments sheep, wethers, lambs, swine, sucking pigs, heifers, calves, a horse, rabbits, dogs, guineapigs, an ass, goats, and pigeons.

II. ACTION OF ALKALIES UPON THE COMPOSITION OF THE BLOOD.—Pupier has experimentally investigated this subject, and he cites the following case:—M. Z., aged 47, had taken during twenty-nine years a daily dose of from 240 to 300 grains of anhydrous bicarbonate of soda, without any anæmia or loss of health. The blood appeared to be as rich in coloured corpuscles as usual, and M. Z. was rather plethoric than otherwise. The conclusions Pupier arrives at, after experimental inquiry, are, (1) that the administration of alkalies, in a state of health, tends to augment the number of red corpuscles, to increase the temperature and weight of the subject, and to favour trophic phenomena; (2) that in a diseased condition of the tissues of considerable extent, they produce anæmia by aiding in morbid changes; and, (3) "on the one hand, they increase physiological function, while, on the other, they stimulate pathological processes." The memoir was presented by M. Cl. Bernard.—*Comptes Rendus*, Mai 1875.

III. STIMULATION OF THE HEARTS OF MOLLUSCS BY ELECTRIC CURRENTS.—Dr M. Foster and Mr A. G. Dew-Smith have been engaged in a very interesting inquiry on this subject. (*Proceedings of the Royal Society*, vol. xxiii. No. 160, p. 318.) Dr Foster had already shown (*Pflüger's Archiv*, vol. v. p. 191), that an interrupted current applied directly to the heart of the common snail removed from the body will cause an arrest of the rhythmic beat, the heart remaining in diastole. The method adopted in the present inquiry is very ingenious. The heart was removed from the body, and placed in a watch-glass, moistened in a little snail's blood. As the organ is so small, a graphic record of each heart-beat was impossible, but they devised the following method of registration: "One of us acting as observer, and watching the heart through a microscope (80 to 100 d.), signalled, by the sudden make and break of a constant current, each beat of ventricle or auricle, or of both. The make and break were recorded by a magnetic marker, as was also the application of the stimulus, on a travelling paper, on which seconds were at the same time being marked." While one observer was thus engaged in watching and recording, the other applied the stimulating current to the heart without his knowledge. The following are the chief observations:—

1. No nerve-cells nor ganglia could be detected in the heart of the snail.

2. Single induction shocks below a certain intensity produce apparently no effect on the heart.

3. The application of a series of weak, single, induction shocks produces no contraction or beat, but is followed by a prolongation of the diastole, that is, an inhibitory action.

4. The inhibition produced by the tetanizing current, applied directly to the ventricle, is in reality the simple summation of the effects of the single induction shocks which make up the tetanizing current.

5. The action of the induction shock on the tissue of the heart begins with inhibition, increases in intensity up to a certain point, and then produces the opposite effect of contraction. (This is very remarkable.)

6. The effect produced by a constant current at each pole is mixed—being partly favourable and partly unfavourable to a beat. In the neighbourhood of the negative pole (cathode) there is a condition favourable to the production of rhythmic beats. At the positive pole (anode) there is the opposite condition. The condition near the positive pole may be compared to anelectro-tonus of a nerve, while that near the negative resembles cathelectro-tonus.

7. The establishment of anelectro-tonus, and the disappearance of cathelectro-tonus, are both unfavourable to the production of the rhythmic beat.

8. The heart of a snail is not composed of fibres, but of masses of nucleated protoplasm, physiologically continuous, and observations showed that the contraction is a co-ordinated movement. The beat is not a contraction wave passing from one end to the other of the heart, but is the result of a *consensus* of movements in different parts of the organ. The words of the authors are:—"We are driven, therefore, to conclude that in the normal condition, where the tissue is physiologically continuous, there are means of communication between all parts; so that the auricular half, for instance, on the one hand, feels, if we may use the phrase, what is going on in the aortic half; and, on the other, exerts an influence on those changes in order to accommodate them to changes taking place in itself, and *vice versa*."

9. The authors consider that this community of feeling and of action in the heart, whereby the condition of the aortic region of the snail's ventricle is communicated to the auricular region, is *a rudiment of the muscular sense.*

These researches are of the highest importance, not only with reference to the character of protoplasmic movements in general (as, for example, those in the various insectivorous plants (*Dionæ*, *Drosera*, etc.), and in the bodies of many protozoa and cœlenterata), but especially as throwing a new light on the rhythmic and automatic movements of the heart in the higher animals. The authors suggest that the ganglia in the heart are not automatic in function in the sense of being the places, as is generally taught, in which nervous energy is produced and stored up, to be diffused rhythmically to the muscular structures of the heart, but that they are really *co-ordinators*, "by means of which indications of the condition of the isolated constituents of the ventricle (and, we may add, of the isolated auricles and ventricle) are carried, as *items of a muscular sense*, to a central organ (the ganglia), and thus the state of each part is made common to all. In this central organ the advent and character of each beat is determined as the expression of the nutritive condition, not of the nerve-cells alone, but of the contractile elements as well."

IV. THE DURATION OF THE RESIDUAL SENSATIONS OF SOUND. —Alfred M. Mayer contributes an important communication to the *London, Edinburgh, and Dublin Philosophical Magazine*, May 1875, p. 352, on this subject.

Helmholtz showed, in his Physiological Theory of Music, that a certain number of beats per second produce in the ear a maximum dissonant sensation, while a greater number may blend into a smooth continuous sound; and he inferred, from the difficulty of trilling on bass notes, that the co-vibrating parts of the ear set in motion by sounds of low pitch, maintain their vibrations longer than those excited by sounds belonging to the higher portions of the musical scale. The method of determining the duration of the residual sensation devised by Mayer for sound, is somewhat similar to that employed by other philosophers for light, and it confirms the inference of Helmholtz. It was as follows:—"A simple sound was obtained by vibrating a tuning-fork before the mouth of its corresponding resonator, and this sound was broken up into flashes or explosions by alternately screwing and unscrewing the mouth of the resonator, by means of a perforated disc which rotated between the resonator and the fork. The mean diameter of the open sectors of the disc equalled the diameter of the mouth of the resonator, while the spaces of cardboard between the open sectors were twice the width of these openings. Thus, the resonator's mouth was exposed to the vibrations during an interval which equalled that during which it was screened from them. A rubber tube led from the nipple of the resonator to one ear, while the other ear was tightly closed with a lump of bees-wax." He then rotated the disc more and more rapidly until the explosions blended into one continuous sensation, and he took as the duration of the residual sensation the interval during which the impress of a beat had not diminished sufficiently in intensity to cause discontinuity in the sensation. By this method, Mayer has found that the residual sensation—that is, the sensation which remains after the cause of it has ceased to act

—lasts a much shorter time in tones of high than in tones of low pitch. Thus Ut_1, having 64 vibrations per second, had a residual effect lasting ·0395 of a second; while Ut_5, having 1024 vibrations per second, had a residual effect lasting only ·0055 of a second.

These facts are an important contribution to the physiology of hearing. 1. It indicates the existence in the ear of a highly complex mechanism, differently affected in its different parts by sounds of different pitch (organ of Corti). The vibrations of the parts which are affected by bass tones, are apparently not damped quickly (also an idea of Helmholtz), so that two sounds blend into one. 2. The ear has no bodies which co-vibrate to sounds produced by less than 40 impulses per second, and when it receives less than this number, it vibrates *en masse.* The durations of these oscillations lasts not longer than $\frac{1}{10}$th of a second. In the same way it is probable that, to sounds of very high pitch, the ear also vibrates as a mass; and although the duration of these vibrations is short, yet they follow each other so rapidly as to produce a continuous sound. But at either limit of the scale of sensibility to pitch, if no responding co-vibrating apparatus exists, it is evident that differences of pitch must be more difficult to detect than in the middle of the scale. Such is well known to be the case; but Mayer's research is the first to show that it must be so. 3. The timbre or quality, or clang of a sound, begins to change at the instant the vibrations outside the ear have ceased, because the residual sensations of the higher harmonics disappear quickly, and nothing but the continuous humming sound of the fundamental is heard. 4. Mayer shows that the middle portion of the musical scale is best adapted for expression; as in the lowest octaves the available consonant intervals are few, on account of the wide intervals between them, whilst in the highest octaves the consonants are so contracted that their highest consonant intervals lose the sharpness of definition given when these are bounded by well-marked dissonances.

In these researches, Mayer had the opportunity of testing the soundness of his views and of making accurate measurements by the assistance of Madame Seilor, a lady remarkable for delicacy of hearing, and who possesses, in addition to an educated musical perception, an "appreciation of recent advances in physiological acoustics." This lady also assisted Helmholtz in experiments for his great work, *Die Lehre von den Tonempfindnugen.*

ON POISONING BY SANTONIN, AND ITS TREATMENT. By P. BECKER.—Becker made his investigations in the laboratory of Professor Binz, stimulated by the occurrence of a case in Bonn. A delicate child, two years old, was violently convulsed ten hours after taking two santonin lozenges (each containing 0·05 gramme of santonin). In each attack the convulsions began in the face, then extended to the extremities, and finally arrested the respiratory movements for some time in an alarming degree. The 3–7 pair of nerves was clearly the part of the nerve centres affected. The treatment consisted in warm baths, enemata containing acetic acid, diluents and artificial respiration by compression of the thorax. The attacks continued during three days, becoming progressively weaker and less frequent. The greenish colour of the urine continued during the whole of this period.

Similar symptoms followed the exhibition of santonin in poisonous doses to rabbits and young cats, to which, however, relatively larger doses required to be given. In the animals so treated, inhalations of nitrite of amyl, and injections of morphia, produced no effect. Chloral hydrate, on the contrary, given before the poisonous doses of santonin, prevented the convulsions. Inhalation of chloroform acted promptly, but is dangerous in cats and rabbits, on account of its action on the respiratory centre. Inhalations of ether, when given on the first convulsive movements of the eyelids and ears being observed, completely suppressed the attacks; given at a later stage, their duration was shortened by a half; and when the animal was kept in a light ether-narcotism, did not recommence.

An animal treated by ether-inhalations, completely recovered within a few days; an animal which had received a like dose, but was not so treated, died in from three to four hours. From these experiments, it is inferred that an appropriate treatment in the human subject would be found in the rhythmical compression of the thorax, until ether could be procured; and after the most pressing danger had passed, in the exhibition of chloral in cautious doses. To eliminate the poison, laxatives and diluent drinks.—From the *Centralblatt*, No. 33, 1875.

BANDL ON RUPTURE OF THE UTERUS.—The views of the author are founded on thirteen cases observed by himself, and nineteen extracted from the records of the lying-in wards of the Vienna hospital. To begin with, a pathological change in the substance of the uterus, which has been so generally accepted as a predisposing cause, especially in multiparæ, was not found in a single case. The uterus was invariably thick, well contracted, situated high, the cervix unusually thin. The fissure was found mostly in the cervix, or began there when the body of the uterus was also torn. The peritoneum was separated only in the lower parts, never from the fundus. A predisposition from disease of the uterine wall, Bandl doubts absolutely, and believes the final cause of the rupture to be always in disproportion; in his thirty-two cases there were nineteen of narrow pelvis, three of hydrocephalus, eight of shoulder presentation, one prolapse of the foot with the head, and only one case remained unexplained. Nor did pressure produce rupture, as he frequently found sloughing without rupture—in one case even both were present, but at different points. An unyielding os uteri, rudimentary or double development, fibroid tumours, are often adduced as causes, but not proven to be so. Like Chiari, Braun, and Spaeth, Bandl considers the predisposing effect of want of proportion increased by the want of equilibrium between a highly developed muscular wall and a thin cervix; and as he found by measurement that the uterine wall in multiparæ, especially when there had been disproportion in previous labours, was much developed, he believes the abnormality to consist in an excessive thinning of the cervix taking place during labour.

In normal circumstances, the passive cervix is drawn back over the head of the child by the muscular uterus; the orificium internum remaining, as investigations on the living, and dissections on the dead subject show, about the level of the brim of the pelvis. But if there exists a disproportion which does not allow the presenting part to descend into the pelvis, the cervix is abnormally stretched, the internal orifice is raised a handbreadth above the brim, and so rupture becomes possible. If this abnormal condition has once existed, it takes place again more easily in future labours, which is the reason why ruptures take place more frequently in multiparæ.

Bandl believes that rupture can be recognised as threatening when the orificium internum gradually ascends, whilst the cervix stretches and the fundus acquires a lateral position.—From the *Centralblatt*, No. 33, 1875.

BLUE URINE.—M. Albert Robin showed, at the Société de Biologie, blue urine passed by a patient of Dr Maillard of Dijon. She complained of intercostal neuralgia on the right side, and the disappearance of the pain was followed by the secretion of blue urine. The blue matter was in amorphous masses; it reddened with heat, became wine-red by fermentation, and carmine coloured with hydrochloric acid (characteristic reaction); thus having the characters of the cyanurine of Bracannot. There was no reason to suspect simulation in the case, and every care had been taken to prevent it. The question of interest is, Whence comes this blue matter? Is it from some transformation of uric acid, or due, as some suppose, to an affection of the pancreas?—*Progrès Médical.*

FOR nearly three years I have recorded the hearing power as a fraction, the numerator of which is the distance at which the particular sound is heard, the denominator the distance at which it should be heard by an ear of good average hearing power. This denominator must vary according to the sonofactor used, and should generally be expressed in inches. For still further simplification, and that the method may be adapted to international use, I suggest the following abbreviations:—A.D., auris dextra, instead of right ear, or R.E.; A.S., auris sinistra; P.A., P. aud., potentia auditus, hearing power; V., vox, the spoken voice; V.S., vox susurrata, whispered voice, or simply S., susurrus, a whisper; H., horologium, the watch. If this system should become general, then the formula P.A., A.D., H. = $\frac{12}{36}$ would to all otologists represent the fact that a watch that should be heard at 36 inches was heard by the right ear of the patient at a distance of 12 inches; the formula P.A., A.S., V.S. = $\frac{6}{36}$ would mean that the whispered voice was heard by the left ear at 6 inches that should have been heard at 36 inches.—Dr J. S. Prout, Surgeon to the Brooklyn Eye and Ear Hospital, in the *Boston Medical and Surgical Journal*, 29th Feb. 1872.

Antisepticism: a Fytte.

"Seria mista jocis."

1.

Descend, my Muse!—for I must follow suit
When seeking for my stanzas a beginning—
With *catgut* strings provided bring thy lute,
And aid me while my verses I am spinning
About a great, unsettled, hot dispute—
I'll not here say who's losing or who's winning,
I've my own notion—*à présent* I'm mute;
At all events 'tis an important matter,
Which has produced no end of din and clatter.

2.

A *matter* did I say?—Yes, all this fuss
Has germinated from a new idea,—
That, if you can but germs keep out, no *pus*
Nor putrefaction you will have, but see a
Wound, abscess, sore—if only guarded thus—
Heal without peril, pain, or pus; to me a
Matter this seems most *laudable*; if proved—
Opprobrium great from Surgery's removed.

3.

Of Antiseptic treatment the invention
Undoubtedly to Joseph Lister's due,
A well-known name, which honourable mention
At home and eke abroad—need I tell you?
Has gain'd for him; has also much attention
To doctrines, which are startling, likewise new,
Attracted, as was lately proved when he
Amidst ovations traversed *Germ*-any.

4.

The German nation naturally must
In *germination* take an interest great,
Therefore when Lister show'd that germs with dust
Are apt to be mix'd up, and at the gate
Of open wounds find entrance, they might trust
One who experimentally could state:
That, when those germs, so carried, you exclude,
No putrefactive process has ensued.

5.

As to putrescence—this was the old view,
  And unconverted sceptics still it hold:
That in decaying matter,—quite of new
  And *suâ sponte*—germs themselves unfold
In varied forms: as maggots, mites, mildew,
  Bacteria, and in short all kinds of mould;
But LISTER says: This mischief without doubt
Comes but from pre-existent germs without.

6.

How then these germs to kill, and to exclude,
  And how prevent the mischief they occasion
In wounds and abscesses and sores?—What would
  To form a barrier certain 'gainst th' invasion
Of subtle, unseen, deadly foes be good?
  That was a question worth consideration;
And unless that was brought to a solution,
How could we hope to obviate pollution?

7.

To work out this solution, tooth and nail
  With skill and labour at it LISTER went,
Fully determined that he should not fail;
  And many an hour, and day, and week he spent,
Racking his very brains till he grew pale,
  And making many an experiment,
Until at last he found—it made him placid—
The true *solution* in CARBOLIC ACID.

8.

He blew then—not his trumpet—but a cloud,
  A cloud not of tobacco, for in smoke
His great discovery ne'er should end he vow'd,
  But of CARBOLIC SPRAY; for it bespoke
All favour, for he said it was endow'd
  With power—if wounds with it you'd only soak—
Of killing germs, preventing putrefaction,
And giving thus the utmost satisfaction.

9.

The spray-producing instrument by hand
  At first was work'd. That was not *handy* found;
The worker wearied might come to a stand.
  So next a pair of bellows on the ground
Work'd with the foot was tried. But this command
  Sufficient did not give; so at a bound—
For he in physics dabbles it would seem—
LISTER recourse at last has had to STEAM.

10.

Watt! thou of steam Colossus—didst not *wot*—
  Excuse the paltry pun—when thou didst give
To man that power, which with results was fraught
  Transcending far what e'en thou couldst believe,
And to man's feeble arm momentum brought
  Which marvels beyond measure can achieve—
Thou didst not wot, I say, thou couldst not dream:
That Surgeons e'er would operate with steam.

11.

But so it is. An engine driven by steam—
  A donkey-engine waggish students say
Somewhat irreverently—blows out a stream
  Continuously of fine carbolic spray,
Making a hissing noise, no whistle scream;
  And woe betide those luckless germs which may
Chance to come nigh—for certainly these same
Must there be done to death—like moths in flame.

12.

I wonder that perchance in this direction
  Those men don't move—those men so *sensitive*—
Who've such a splutter made 'bout VIVISECTION,
  Don't living germs—poor things—seek to relieve
From LISTER's cruel spray!—To my reflection
  Their rude attempt to make the world believe
That wanton cruelty marks men of science
Is *senseless*—quite unworthy of reliance.

13.

It may be ask'd: Where are those germs?—and whence
  Have they come forth, for them no one e'er saw?
I'd answer *Scotticé*:—Think you 'tis sense—
  That because one can't see them, one should draw
The inference that it is all pretence,
  And that there's no such thing?—Why! by that law
You might be doom'd for ever to be blind,
And e'en to doubt you have an unseen mind.

14.

As to the whence—read you not long ago
  That a strong-minded female called Pandora
Open'd a box from which in fearful flow
  Came rushing forth diseases *sine morâ*?
Whether as germs they came I hardly know—
  I think it not unlikely. Could we pour a
Stream of carbolic spray into that box,
We might destroy them—as we'd fell an ox.

15.

We've heard a deal of late of self-creation,
  Of Matter god-like into various forms
Of life itself evolving. Demonstration
  Of this by Bastian has been tried. Of storms
Of wild discussion it has proved th' occasion,
  And in some quarters of no small alarms;
If that a watch can be self-made you show not,
How living organisms can—I know not.

16.

That what defiles the soul comes from within
  We're told upon the best authority;
On that point no one's sceptical I ween,
  Our parsons there should anti-septic be.
But with the body 'tis not so we've seen,
  At least if we with LISTER should agree,
For it's exposed to germs that float around,
Waiting till they've a proper *nidus* found.

17.

“They’re ever on the watch to seize their prey—
“Kill them and bar them out,” bold LISTER cries,
“You have the means in my CARBOLIC SPRAY.”
O would that we some method could devise
Whereby an atmosphere of it all day
We could inhale! Then might we not surmise
That longer we might live—e’en than we’d care to—
Freed from so many ‘ills that flesh is heir to.’

18.

Diseases term’d Zymotic, which, alas!
Such scourges of the human race remain,
And vast mortality amongst the mass
Have caused, still cause, spite of our efforts vain,
Diphtheria, Typhus, Erysipelas,
Measles, and Scarlet Fever, and a train
Of others such, might they not pass away
If only we could breathe Carbolic Spray?

19.

But to return to Surgery—for there
The Antiseptic system can show cause
Why one at least should make the trial ere
One says it is not worthy of applause—
Besides the spraying, one must take good care
Wounds to envelop in CARBOLIC GAUZE,
Of which the needed quantity’s extensive,
And it is fair to add—somewhat expensive.

20.

Gauze long has been in use for ladies’ dress,
For dressing wounds its application’s new.
These wounds require eight plies of gauze—not less—
Gauze carbolized, which has a yellow hue.
Bandaged and thus protected, you’ll confess
That any saucy germ might well look blue,
Which tried to enter there and play the deuce—
What of such vain attempts would be the use?

21.

But now upon another string my Muse
Must harp—and that a catgut string shall be;
But CATGUT CARBOLIZED—for *that* they use
Instead of silk to tie an artery.
When so prepared catgut wounds ne’er imbues
With hateful germs as silk does dangerously;
You tie it firmly, then it close you cut,
In due time vanishes the safe catgut.

22.

The staple use of catgut, as we know,
Was fiddle-strings, which not unfrequently
Are apt to break—at times *mal-à-propos*—
And thus to interrupt the harmony.
If carbolized, I wonder if the bow
Would find that they, the strings, would tougher be,—
’Tis worth the trial. (In parenthesis:
Might the Scotch Fiddle not be cured by this?)

23.

Besides the Gauze, the Catgut, and the Spray—
To make the thing complete—I needs must add:
That TUBES of INDIARUBBER you must lay
The serum to drain off, for it were bad
Were that block'd up; and so, in the same way
That humid fields with tile-drains are made glad,
Are wounds with drainage-tubes—yet this premised,
That 'tis essential they be carbolized.

24.

But, by the way, I had forgot to state—
Of a good thing too much may tend to harm—
Carbolic Acid wounds might irritate;
That guardian angel with his potent arm
Might prove too potent—that's beyond debate—
And then the remedy would lose its charm;
LISTER 'gainst this with OIL-SILK CARBOLIZED
That wounds should be protected has advised.

25.

There lately on our city swarm'd a cloud
Of doctors of all kinds, *sex*, and degree;
A motley host—in spirits—talking loud—
Who came from near and far, beyond the sea—
Frenchmen, Italians, Germans swell'd the crowd,
Huns, too, for aught I know—from *Hungary;*
They made a wordy fussy demonstration—
This British Medical Association.

26.

These learnèd pundits anxious were of course
To see all they could see—and to be seen;
Wherever novelty appear'd—in force
They squeezed intent on knowledge—fat and lean.
A doctor's keen upon each new resource,
Up to the mark he likes to be—not green;
The Antiseptics then were sure to be
Attractive to a goodly company.

27.

To gratify their curiosity
LISTER had made all fitting preparations.
He gladly seized the opportunity
To give in Hospital two demonstrations—
With such success that doubtless we shall see
In all directions and on all occasions
The fizzing engine, and Carbolic Spray,
And Antiseptic Gauze brought into play.

28.

The funny thing was that his colleague SPENCE
Held very cheap the system Antiseptic;
A surgeon he of skill and common sense,
But in this matter a most thorough sceptic.
He'd by the good old fashion stick, and hence
His bile it raised, and made him quite dyspeptic,
To hear it said that by the first intention
Wounds oftener heal by LISTER's new invention.

29.

That Doctors differ should cause no surprise,
  They've always differ'd, and will to the end.
We'll calmly judge between them, if we're wise,
  Our verdict on results, I apprehend,
Must rest at last. Meanwhile no sacrifice
  Too great we'll reckon, if it only tend
To find out truth—truth which will never fail
In spite of differences to prevail.

30.

'Tis right that there a thorough testing be
  Of all that's new—and copious information.
'Twas so with Harvey's grand discovery
  Of the Heart's action and the Circulation;
'Twas so with what from Smallpox set us free—
  At least in measure large—great Vaccination;
And so in other matters great and small
The mists are best dispell'd by a rough squall.

31.

O'er Surgery, since my young days, reform
  Wholesome and vast has stolen, which we may prize.
Under that blessèd soother CHLOROFORM
  The patient motionless, unconscious lies;
Surgeons may operations now perform
  At leisure, undisturb'd by patients' cries
Or struggles;—and the BLOODLESS-MODE secures
That flow of blood the vision not obscures.

32.

Much more conservative 's our practice *now*—
  O well I love that term *conservative*—
For far too *liberal*-ly *then*, I trow,
  Were limbs lopp'd off, of that I'm positive.
That that's a great improvement all allow;
  We must to SYME for this due credit give,—
If you need proof, I'd call to recollection
What by him was accomplish'd in RESECTION.

33.

Our dressings, too, how simple!—When of these,
  Compared with what they used to be, we think—
Those odious plasters, ointments, poultices,
  How in our nostrils they were wont to stink!—
We may be thankful. Yet why should one sneeze
  At Antiseptics, and that question blink?
Give them fair trial, say I,—should they fail,
'Twill then, methinks, be time enough to rail.

34.

In Medicine—spite of HAMILTON—we've made
  Some little progress, too, as BEGBIE shows;
The violent drugging system 's in the shade,
  Blood in Sangrado style no longer flows;
Almost disused is now the lancet-blade—
  Rather too much disused as some suppose;
And more and more we've come to trust to diet,
Fresh air, cold water, gentler drugs, and quiet.

35.

Though simpler be our practice, yet 'tis real,
Of course in some respects empirical;
We're yet a long way off that *beau-idéal*,
Which reach most probably we never shall,
When with fix'd principles and methods we all
An art shall practise purely rational;
Yet in the meantime let our efforts be
Onwards to press with zeal and honesty.

36.

Like noxious and putrescent germs we find—
Without—alas! within our great Profession—
Quackeries abundant, and of every kind,
Which to destroy were surely no oppression;
Let hum-bugs, noisome vermin, be consign'd
To antiseptic spray in full possession;
And if it these shall kill, and root them out,
Who of its efficacy e'er shall doubt?

37.

And here, perhaps, 'twere time to call a halt,
Lest on myself I may draw down a *dressing*—
Not Antiseptic, I'm afraid, but salt,
And pepper too,—because of my transgressing
The bounds of moderation. Yet if fault
You find with what I've written 'twere distressing;
This only I'll aver in my defence:
That I in what I've said mean no offence.

38.

That "*seria mista jocis*" I have taken,
As motto for my humble *jeu d'esprit*,
You'll have observed; but that won't save my bacon
If that 'tis balderdash you should decree.
N'importe, I'll, Cato-like, bear it unshaken—
With *sang-froid* bear it, and philosophy—
With this remark: that it must be confess'd,
That many a true word is said in jest.

EDINBURGH, 18*th August* 1875.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

EDINBURGH, 18*th September* 1875.

SIR,—Dr Watson's rejoinder is no answer to my letter. He evidently misapprehends the meaning of the term "culpable homicide," and is, strange to say, inaccurate as to the charge preferred against the prisoner on whose behalf he appeared. Dr Watson says, "The prisoner was tried upon two charges—1. That of murder; and, 2. That of culpable homicide; and that, at the outset, he pled not guilty to both." So positive is Dr Watson as to this, that he prefaces his statement with "Dr Littlejohn knows as well as I do." Unfortunately for Dr Watson, I know nothing of the kind. The prisoner was tried on the simple charge of murder, and pled not guilty to that charge, and to that alone. No one, except Dr Watson, ever doubted that the prisoner killed his wife. The sole difficulty in the case was as to the amount of his mental responsibility for the crime. He was proved to be of a low type of intelligence, confused in speech, and a sot. Two of Dr Watson's colleagues, skilled in mental diseases, on the Saturday prior to the trial, actually certified the prisoner to be insane, and that he ought to be in a lunatic asylum; while the medical superintendents of two of the largest asylums in Scotland were in attendance for the defence, still further to testify to his mental unsoundness. Dr Watson, too, supplies in his narrative of the trial a convincing proof of this,—the poor criminal could not be made to understand his position, until his law-agents got him to repeat, like a parrot, the words, "Guilty of culpable homicide." By this plea, the prisoner (or, if Dr Watson will have it, his agents for him) confessed that the blow which had killed his wife had been struck by him, and was the cause of her death, *not accidentally*, as Dr Watson's experiment and evidence went to show, by her body falling upon a knife, which the prisoner happened to have in his hand at the moment; for then, as stated in my former letter (although Dr Watson finds it convenient in quoting the passage to mutilate it), "had Dr Watson's evidence had the weight he attaches to it, the prisoner would have been discharged as 'not guilty,' as an accidental death of the kind spoken of by Dr Watson involves no criminality. *In addition, in Scotland we have the verdict of 'not proven;' and had the jury been in doubt, the prisoner would have had the benefit of it, and been discharged from the bar.*" Dr Watson, however, continues to plume himself on his evidence, ignoring entirely the testimony given by the witnesses for the Crown, as to the imperfect mental condition of the prisoner, and also the powerful array of witnesses for the defence, prepared to testify to his unsoundness; and not a hint is given that any question had ever arisen as to the prisoner's mental responsibility. Dr Watson ascribes the result, viz., *a sentence of penal servitude for fifteen years*, to one of two things—either to the excellence of the evidence for the defence, or to the failure of the evidence for the Crown. I admire his modesty, but I am not called upon to choose the alternative. The evidence of the Crown was consistent throughout; *a conviction was obtained* on a proffered plea of culpable homicide, followed by a very heavy sentence; and it rests with Dr Watson to explain such a remarkable result, after the expression of his opinion in the witness-box, that the wound in question was of accidental origin. Dr Watson's *written* statement, that the wound "*might* have been purely accidental," is entirely in accordance with the evidence of the medical witnesses for the Crown. But after his evidence, the prisoner's counsel and agents considered the case had assumed such a very serious aspect, that, as is so graphically described by Dr Watson, they actually arrested the progress of the trial, and became almost frantic in their endeavours to get the prisoner to comprehend his perilous position, and plead guilty to the crime of culpable homicide. The temper of the jury was easily seen, and a little longer dallying with questions, apart from the all-important one of his mental capacity, might have proved most disastrous to the prisoner. I have already disposed of the inaccuracy of Dr Watson's statement, that the public prosecutor "pressed" the charge of culpable homicide. He did nothing of the kind,—the pressure was all on the other side, and the prosecutor "accepted" the proffered plea, as I have said, with some reluctance.

But Dr Watson finds fault, *first*, with my description of the specimen he showed at the Society, although I took it from the account he himself furnished! I am willing, however, to allow that through inadvertence I called the knife an ordinary table-knife, instead of a carving-knife, and Dr Watson is welcome to all the advantage of this oversight. And, *secondly*, with my having addressed you on the subject. Now, he ought to have known (and, by-the-bye, he was in the chair that evening) that it is against the rules of the Medico-Chirurgical Society to introduce debatable matter while exhibiting pathological specimens. No discussion is allowed when such specimens are shown, for the very good reason that, were such permitted, the papers that follow (the titles of which have been printed for days prior to the meeting), would hardly ever be read at the time advertised. As it was, I happened to be absent on the memorable occasion; but, had I been present, no refutation of Dr Watson's misstatements would have been permitted, and the reading of a special paper, due notice of which had been entered in the billets, would have been my only resource. The first account of the proceedings appeared in the *British Medical Journal* of 12th June, and in the very next number I drew attention to the various inaccuracies in Dr Watson's account of the trial. He took no notice of my letter, and I hoped that, when the Proceedings of the Society came to be published in this Journal, the obnoxious paragraphs would have been suppressed. As, however, they appeared without alteration, I requested you to insert my protest.

Had Dr Watson confined himself to an exhibition and description of his specimen, no one would or could have objected; but when he so far forgot himself and the position he occupied at the time as to give so inaccurate an account of the effect of his evidence as almost to amount to a delusion, he should be grateful to any one who takes the trouble to set him right. Had he chosen to limit himself to merely private talk, private explanation would have been proffered; but when his erroneous statements have gained admittance to influential English and Scottish journals, Dr Watson must, like other people, submit to have his assertions canvassed and corrected. HENRY D. LITTLEJOHN, M.D.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Practice of Medical Jurisprudence.* By H. D. LITTLEJOHN, M.D., F.R.C.S. Ed., Surgeon of Police and Medical Officer of Health for Edinburgh; Lecturer on Medical Jurisprudence and Hygiene, School of Medicine, Edinburgh.

NO. II.—MEDICAL REPORT.

IT is well known that our criminal law has a common origin with that of France. The fact admits of easy and satisfactory explanation, and nothing illustrates more forcibly the difference that exists between criminal procedure in England and Scotland, than an examination of the text-books on Medical Jurisprudence in use on either side of the Channel. In the French, careful details are given as to the structure of Medico-legal Reports, and numerous examples are appended to guide the practitioner in framing them; whereas in Taylor or Guy, no such information is afforded, for the very good reason that in an English court of justice written reports are not required.

When we come in these papers to trace the progress of a criminal case in Scotland, from its discovery until the accused is brought to trial, we shall have an opportunity of comparing the respective systems in vogue in the two portions of the kingdom, and of pointing out the special advantages and disadvantages of each. England and Scotland may claim for their respective criminal codes, that a prisoner, as he happens to live on the north or south of the Tweed, obtains a greater or less amount of justice in the investigation of his case, but with regard to one point there can be little room for discussion, and that is, the importance in any grave criminal case of the preliminary examination of the *corpus delicti* being intrusted to medical men of experience, whose report, whether embodied in writing or not, shall be exhaustive, and not require to be supplemented from time to time as fresh evidence crops up against a suspected party.

In France and Scotland, it naturally happens that attached, so to speak, to each public prosecutor in town and country, there is some one medical practitioner who from daily experience in the practice of Medical Jurisprudence becomes not only versed in the various forms required in the construction of such documents, but has his mind so directed to medico-legal inquiries that when associated, as is the universal custom in Scotland, with a medical colleague, such a statement is furnished to the authorities as supplies them with the information necessary for the conduct of the case. The principal requisites in these documents relate, first, to their form, and, secondly, to their substance. The form of a medico-legal report has now become almost stereotyped, and after a short experience—often, however, dearly bought—the medical man becomes acquainted with the structure of such documents. Correctly to supply the substance, demands alike carefully cultivated habits of observation and an intimate acquaintance with diseased and healthy structures, and also with the leading facts of the science. The perfection of a report would imply such powers of description and correctness of style, as would suffice to place its reader in as advantageous a position as the medical inspector himself, and to justify the statements of the medical witnesses called for the defence, that they possessed as clear an idea of the post-mortem appearances as if they had been present at the examination. No higher compliment can be paid to a report, and every inspector should aim at deserving it. If, on the other hand, the report is confused and imperfect in its description, the prosecution not only suffers, but the prisoner is placed at great disadvantage. He has no opportunity of remedying such defects, and is compelled to accept as accurate a document which, while containing a strong expression of opinion, fails to present in a definite form the facts that could alone justify it. But, in addition to careful description, the document must be clearly and intelligently arranged. Facts may be so intermingled as to leave no definite impression on the mind, and it behoves the medical inspector to adopt some simple arrangement which, while it assists him in classifying his facts, is of service in preventing him omitting any of the slightest importance.

A medico-legal report should consist of—

I. The date and place of examination, and the identification of the individual.

II. A statement of the appearances.

III. An opinion expressed either as to the cause of death, or as to the nature, mode of production, and danger of an injury.

The foregoing scheme represents the structure of a medico-legal report, and care should be taken in drawing up such a document that the three divisions are kept distinct—each constituting a special paragraph.

The *first* generally contains two dates, that at the head of the report specifying the date when the report was completed and signed, the other the date when the examination was made. It often happens, however, that the examination is so satisfactory—the cause of death being easily determined—that the report is forwarded to the authorities on the very day of the examination. On the other hand, in an important criminal case, where the dissection has been tedious, involving many anatomical details, and where appearances have been found demanding careful description, or, fluids and structures have been removed for the purpose of microscopic examination or the application of chemical tests, some days may elapse before the report can be completed and signed. Under these circumstances there will be a difference in the dates; but this difference should be stated—the date at the head of the report representing that at which the opinion appended was arrived at. Of course the sooner the report is completed the better; but it must ever be remembered, that the interests of the prisoner and of the Crown demand that the document, on the complexion of which the nature of the charge will depend, should be as distinct and complete as possible.

No definite answer can be given to the question, What length of time may be permitted to elapse between the examination and the transmission of a report? We have known of cases where exception was taken to the fact of the report bearing the date of the day of examination, although it was manifest that some days must have been occupied in its preparation, and the discrepancy had to be explained in the witness-box. Again, in an unusual case of murder, where death occurred a few days after the receipt of a stab in the left armpit, and where, on dissection, it was found that the surface of the heart had been reached by the knife and wounded (producing extensive pericarditis and pleurisy), no wound of the lung could be discovered, and it was evident that the knife must have passed between the pulmonic lobes at the moment of forced inspiration—it was of consequence to verify the fact on a dead body before giving a positive opinion. Some time elapsed before a fresh body could be procured for the purpose of experiment. The delay was fully explained in the Crown precognitions;[1] but, on the trial, the counsel for the prisoner subjected a country practitioner, who was engaged in the case, to a sharp cross-examination as to the cause of the delay, and managed to hint to the jury that the delay was solely the result of dubiety as to the *cause of death!* Now, in such a case, the medical witness must be ready with his explanation, and this, if stated clearly and at once, will be accepted as satisfactory by the Court. We are still, however, of opinion, that where there could be no cavil as to the cause of death, there should have been as little delay as possible in completing and forwarding the report, and that the result of any experiment bearing upon the exact route of the weapon, should either have been embodied in a supplementary report, or been described in the precognition.

The next point to be alluded to, and one of great importance, is the *identification* of the subject of examination. In the case of a person who is alive, this is effected by asking him his name and his place of residence; and these two facts are stated in the report. This identification is held to be satisfactory, as it is not likely that two persons of the same name should live in the same locality. The medical man is often, however, asked in the witness-box to identify the person named in his certificate, and this is sometimes a point of some difficulty; the witness is naturally embarrassed at finding that he cannot, on the spur of the moment, recognise among the audience in Court, or even where one person is desired to stand up, the individual with regard to whom he has given a very circumstantial report. The difficulty is not to be wondered at, when we consider that sometimes, in the case of ordinary assaults, two months may elapse between the taking of the evidence and the subsequent trial. The injured party, when first examined, was in all probability disfigured by bruises and bleeding, and dressed in his ordinary working clothes. On the day of trial, however, all traces of injury have disappeared, and he is arrayed in his best suit, which is generally one of mourning. Identification here in the Court is next to impossible, unless the simple precaution be taken of seeing the injured party (who is generally the first witness) as he leaves the Court after giving evidence, examining the site of the injuries and his present condition, and thus refreshing one's memory as to his appearance. We have seen medical men a good deal nonplussed at not being able to pick out a person in the open Court, whom they examined with scrupulous care some time previously, and they have been asked whether, in the circumstances, it is not possible that they have made a mistake as to the person. In any case of difficulty, the proper course to pursue is at once to allow that the person named in the report cannot be recognised; but, at the same time, to affirm that the name and address mentioned in the report were obtained in answer to the usual questions.

---

[1] These consist of the statements of witnesses taken down in writing by the Procurator-Fiscal, and in private, at the instance of the Crown, and only available for the prosecution.

The identification of a *dead* body, while no special part of the duty of the medical inspector, is so important, that he should take care never to proceed with a post-mortem examination which has been ordered by the authorities, or one likely to lead to a criminal investigation, until the body has been properly identified. It is a rule in Scotland that there should be at least three witnesses to speak to the identification. This is to guard against the chapter of accidents; severe illness, or even death, may attack one or more of the witnesses, and their evidence would not be available. We must remember that several months may elapse between the date of examination of the body and the trial of the accused. In one case, two out of the three witnesses of the identification died before the day of trial. Now it is awkward, to say the least of it, in an important charge, involving perhaps a person's life, to have such a slender amount of evidence adduced to speak to the fact that the body found and examined was the veritable body of the deceased. Of course, as one witness was available, no impediment occurred in the progress of the trial; for otherwise, had all the witnesses died or been detained by illness, the case would either have broken down or have been at once postponed for the purpose of securing, if possible, fresh evidence. For we must recollect that, consistently with the law, no person can, in the absence of strong subsidiary testimony, be condemned for murder, unless the body or remains of his supposed victim be produced and identified. To this day the late John Sadlier, M.P., is by some supposed to be alive and well in America, although there can be little doubt that he committed suicide on Hampstead Heath. Unfortunately, before the coroner his body was identified by only one witness, viz., his butler, who was reported to have been but a short time in his service, although it must have been an easy matter to have summoned the relatives and other intimate acquaintances of deceased, who by their conclusive testimony could have definitely settled the question of identity.

In Scotland, on such occasions, a sheriff-officer is ordered by the public prosecutor to be in attendance, and the custom is to produce the witnesses separately, who look at the body, and either name it or state the grounds for their identifying it; and, lastly, before they leave, the medical inspectors are pointed out, their names are mentioned, and the witnesses are warned to remember that they have seen the body in the possession of the medical men named. The procedure is apt to cause a smile, so careful are the precautions taken by the authorities to verify the identity of deceased, and that the examination was in truth the examination of the individual it purports to have been. Should the body which is the subject of inspection be that of a person whose name is at the time unknown, the greatest care is requisite in securing every link in the identification. Thus, the persons who found the body and gave information to the police, and those who removed it, must be present to identify it in presence of the doctors. In a railway accident which occurred near Edinburgh, a person was killed who happened not to be recognised for some days thereafter. The body had been removed from the line of rails where the accident occurred to a private house in the immediate vicinity. Thence it was conveyed by another set of officials to the mortuary, where it was received by the persons in charge, and where the post-mortem examination was made. The medical inspection was proceeded with after identification by the two sets of witnesses only, viz., those who removed the body from the house and those who received it at the place of examination. On the trial, the omission of not having also present those parties who removed the body from the site of the accident to the house in which it was first received, was severely animadverted on by the presiding judge, who remarked that he could not but consider the identification as very imperfect, and that there was no evidence before the Court to show that the body which the doctors examined was really that which had suffered from the railway collision. It must be kept in view that on a criminal trial nothing is taken for granted, and that every step in the evidence which is produced against a prisoner must be clearly proved. This is all the more necessary in Scottish procedure, which denies to the prosecution the right of making a preliminary address to the jury, and insists that every fact must be proved before the public prosecutor states his view of the case.

It is easily understood, that in a complicated case of murder, for example, the means by which each witness identifies the deceased may vary much. One may have known him intimately, another by name only, a third by having passed him accidentally on the public road, and a fourth by the discovery of the dead body. The question arises, How are these facts to be stated in the report? Is the medical reporter to be held responsible for the statements of these witnesses? and is he to introduce into the report a detailed account of the manner in which each witness identifies deceased? A medical report should contain no such mere hearsay evidence. It should simply state, that the body was identified by so-and-so—naming the witnesses, leaving them to explain afterwards in the witness-box the opportunities they had of assuring themselves that the body which they saw in the possession of the doctors, was that of the person whom they knew, etc., etc. The medical man, by following this simple rule, is relieved from some trouble, and his report is not burdened with unnecessary details, the responsibility for the truth of which he cannot undertake.

It is especially when deceased is not known, as we have just stated, that the greatest care must be taken to have the identification as complete as possible. A knowledge of the importance of this by the medical inspector will ensure that every witness is present who can testify to the movements of deceased prior to his death, so that no link in the chain of identification is wanting. And we need scarcely add, that in such cases it is better to err on the side of having too many witnesses than too few. Of course, where one witness speaks positively to the identification, the usual number need not be exceeded, as it may put the authorities to the trouble and expense of producing them at the trial.

The question has been asked, Should the accused or the party suspected be one of the witnesses to the identification at the post-mortem examination? The objection is, that any one, by being requested to identify a dead body, is asked, it may be, to criminate himself; and, according to the humane provisions of our law, no one can be compelled to do so. Should, for example, a husband whose wife has died under suspicious circumstances, offer himself as a witness, he should not be accepted. If the result of the examination be such as to inculpate him, then when examined judicially before a magistrate, and after being duly warned that whatever he says may be used in evidence on the trial against him, he is shown the body, and asked to identify it.

In no class of cases is identification more difficult than in those, which are not unfrequent, where we have the exposure of a newly-born child. The first persons to discover it may be boys, who, without any careful examination, report the circumstance to the police; and afterwards, when they are shown the corpse at the dissection, they have a difficulty in stating positively that the body in question was the one found by them. They are rarely able to mention the sex of the infant, and it is only in a very general manner that they speak to the identification. In such circumstances, it is the duty of the police constable to see that the witnesses who called his attention to the case should satisfy themselves, by more careful examination at the time, of the appearances of the body. The medical inspector, however, by examining the exterior of the corpse, and noting particulars, in other circumstances of trifling moment, may aid materially in obtaining positive identification in otherwise desperate circumstances.

The following cases will illustrate our meaning. The body of an infant found in Duddingston Loch was ultimately identified by a nurse in the Maternity Hospital, in consequence of the presence of a small blister, the size of a pea, about a quarter of an inch from the semi-cicatrized umbilicus, which had attracted her attention in the only opportunity she had had of dressing the child. In another case, the downy hair over the upper part of the sacrum was slightly elongated for the space of a sixpence. A woman who had occasionally nursed the child spoke positively to the identification, from having observed this insignificant appearance. She was proved to be correct, and this unexpected testimony led to the discovery of the mother. The body of an infant was found on the beach, having evidently been washed ashore. No peculiarities were observed on it, but the thread with which the umbilical cord was tied was peculiar, and was luckily preserved. Subsequent to the burial of the body, suspicion was directed to a woman living in the immediate neighbourhood of Edinburgh. The officer who called to make inquiry had his attention at once attracted to a small hank of thread exactly similar to that around the cord. The woman, on being suddenly questioned, at once confessed that she had disposed of the body of her child by throwing it into the sea. Lastly, the cord itself may furnish strong evidence of identity. Its torn extremity may supply the link necessary to set the question beyond all doubt. The dead body of an infant was found in a privy, and a servant, who had on the score of illness been allowed to return home to her relatives at a distance of some miles, was suspected of being the mother. In the course of the following day she was questioned on the matter, and in the bed in which she lay was discovered an afterbirth, with portion of the umbilical cord attached. The free extremity of the cord presented a torn surface, which corresponded in every particular with the extremity of the portion found attached to the child.

In treating of infanticide we shall have occasion to insist on the importance of preserving the body of an infant which has been exposed and has not been identified, as long as possible after the dissection, in order to permit of the inquiries of the police being completed. A newly-born infant is, under the most favourable circumstances, necessarily seen by few, and its bulk is also such as to allow of its carriage to a distance from the place of its death. Hence the area of investigation is wide, and time must be given for a thorough search for the guilty party. The cases just quoted show how slender and evanescent may be the most important link in the identification, and the medical inspector should take care not only to preserve generally the corpse in some preservative solution, but also on no account to disfigure the face by any of the usual methods of dissection recommended by authors. When persons are brought by the officers engaged in the case to see the body, and if possible to identify it, the face should only be exposed in the first instance, as the marks left by the dissection of the trunk attract at once the attention of the witnesses, and divert it from those parts of the greatest value in determining the identity, viz., the face and head.

In the *second* division of the report, the appearances noted on an external and internal examination of the body are succinctly and as clearly as possible described. We shall have occasion, in passing in review the leading criminal causes of death, and giving hints as to reporting on each, to point out what is absolutely necessary to be found and described, to justify our ascribing the death to those causes. An intelligent reporter, indeed, shows his knowledge of his art as much by what he withholds as by what he gives in detailed description. An account of a post-mortem examination may be stated at tedious length, and to an unpractised eye appear from its bulk to be exhaustive and complete. Yet it may be overburdened with details of not the slightest consequence in determining the cause of death or the nature of the case, and the very appearances which alone could settle the question, and which were undoubtedly present, remain unnoticed. The reporter feels himself at sea, and, in his desire to mention everything, allows points of the greatest moment to escape his notice. Of this he may be unpleasantly reminded as he prepares himself to give evidence, either in conversing with some medical friend, or in perusing some standard work on the subject. It must be remembered, however, that a report which has reached the authorities cannot be recalled for the purpose of being submitted to correction and amplification. Such a document, when once received, cannot be amended, and it appears with all its imperfections at the trial to annoy its author. No doubt, its deficiencies may be supplied in a supplementary report, which would be presented as an addendum to the principal. But we cannot advise that such a course should be followed, as the counsel for the defence will not fail in cross-examination to elicit the painful fact, that omissions had been made, which, on reflection, had been rectified,—and to ask the question, Whether the witness was perfectly sure that all the deficiencies in the report had even yet been discovered ? and whether further additions in the shape of separate reports might not still be necessary to give a strictly accurate account of the appearances in the body, and thus enable the prisoner and his counsel satisfactorily to meet the charge in the indictment ? Such an ordeal has only to be witnessed, much less undergone, to impress on one's mind the importance of knowing what to look for amid the mass of appearances that meet the eye on every side, and how to describe what ought to be detailed with such clearness, that the prisoner labours under no disadvantage in not having been directly represented at the inspection by a medical man deputed to attend to his interests.

The *third* division contains the opinion which should be the expression of the estimate formed by the reporter of the value of the facts contained in the previous portion of the report. A lawyer, being generally unable, from want of previous training, fully to understand the technical expressions used in the body of the report, directs his attention to this concluding paragraph, in the hope of finding there what to him is of the greatest importance in preparing for the prosecution or defence, viz., the deliberate judgment of the reporter as to the value of the principal facts described. Every appearance of importance should be alluded to in the opinion; and the omission of this simple rule may subject the prisoner to much uncertainty, and possibly to injustice. In a case of criminal abortion, among the appearances noted on the body of the fœtus was a deep scratch on its neck; and as the prisoner was charged with having committed the crime by means of the stylet of a catheter, this peculiar wound was regarded by the medical men consulted by the prisoner as pretty conclusive proof of the use of such an instrument. The three gentlemen who conducted the post-mortem examination were questioned by the counsel for the prisoner as to what appeared to be deficiencies in the report, and, among other points, explanations were asked as to the exact situation of the scratch, when it came out that this scratch had been accidentally inflicted by the nail of one of the inspectors during his delivery of the deceased. Not a hint as to this mode of production was given in the opinion appended to the report which contained an account of the dissection of the mother and fœtus, and the true history of this most suspicious appearance was only forthcoming on the trial. It had, doubtless, influenced the views of the prosecution, and had tended to strengthen the feeling against the prisoner. Now, all this uncertainty would have been avoided by simply stating in the opinion, "that the wound in the neck, described above, had been inflicted accidentally by one of our number during the delivery."

(*To be continued.*)

ARTICLE II.—*On Inflammation.* By G. THIN, M.D., London.

INFLAMMATION, the pivot, according to the late Professor Bennett, upon which medical philosophy has revolved in all ages, is a comprehensive term which embraces a number of changes in the elements which compose animal tissues. The nature and sequence of these changes are ill understood, and are consequently subjects of unending controversy. And when it is considered that the normal structure of the tissues in which the changes take place, is just as much subject of controversy as the inflammatory changes which take place in them, we cannot wonder that the nature of inflammation continues to divide successive generations and the different contemporary schools of pathology. In beginning the study of inflammation, it becomes therefore absolutely necessary to consider first how much it is possible to know of the healthy tissues.

Investigations into the nature of connective tissue having led me to different conclusions from those which have been hitherto taught, I applied them to an experimental study of the nature of inflammatory change, and I believe I have found in them a key to the perplexing difficulties which meet any one who endeavours to reconcile the conflicting observations of the schools of Stricker, Cohnheim, and other contemporary writers. In this number, I shall therefore, as a fit introduction to the subject, endeavour to explain what I believe to be the general plan on which all the connective tissues are formed. As the studies to which I have referred have been largely made on the cornea, and as most of the observations by myself and others to which I shall afterwards refer, have been made on the inflamed cornea, it is convenient that I begin by a study of that structure. I will then show that it can be considered as typical of the other forms of the tissue.

The substance proper of the cornea may, like other forms of fibrillary tissue, but not so readily as some of them, be resolved into exceedingly fine fibrillæ, whose diameter it is impossible to measure with accuracy.

In a cornea which has been sealed on an object-glass in aqueous humour, and in which a few incisions have been previously made in different directions, there may, in some instances, after twenty-four to forty-eight hours, be observed, lying free between the edges of the incisions, long, even, straight-contoured bands of various length. Their breadth in the frog approaches the diameter of a human red blood-corpuscle, and they are all of equal breadth and thickness.

In the edges of the incisions, similar bands may be seen lying parallel to each other, and occasionally they may be seen in uncut portions of the cornea. A cornea similarly treated, and sealed up in a mixture of gold solution[1] and acetic acid, occasionally shows the same appearances.

Considering the fibrilla as unity, I shall for convenience, apply the term primary bundle to these bands.

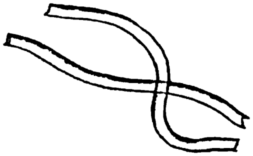


Fig. 1.—Primary bundles from a frog's cornea in aqueous humour. —Hartnack, Obj. 8, Oc. 3.

Fig. 1 represents two of a group which were examined in aqueous humour.

In sections of the cornea treated in gold and in teased preparations variously obtained, broader bands of fibrillary substance can be seen more or less perfectly isolated. These correspond to the so-called "bundles" of fibrillary tissue, the existence of the definite element which I have designated as a "primary bundle" not having been recognised. The "bundle" of authors I shall distinguish as a *secondary* bundle. It is composed of a number of primary bundles applied parallel to each other.

The anterior surface of a cornea carefully examined in aqueous humour, may be frequently seen to be intersected by clefts. They are recognisable by the distinct double contour of their borders, and their detection is facilitated by examining a frog's cornea in blood serum which contains a considerable number of blood-corpuscles. The red corpuscles, in virtue of some attraction or current, find their way into the clefts, and, being drawn into the narrowing channel, they are seen at some parts of it as long narrow bodies.

On careful examination, it can be sometimes seen that even at the narrowest parts the superficial epithelium does not bridge the cleft, but dips into it over each edge. The clefts are wider nearer the limbus, and run obliquely into the substance of the cornea, occasionally diverging as they approach its centre. When once seen, they need never afterwards be confounded with the nerves of the cornea. They are more easily recognised in inflamed preparations.

These clefts indicate a further arrangement of the fibrillary substance into tracts or compartments, which, if the phraseology of "bundles" is to be adhered to, might be designated tertiary bundles.

Horizontal layers of cornea substance, thicker than the lamellæ seen under the microscope in a vertical section, may be detached from a cornea which has been for some days in weak acetic acid. Those, I believe, have a relation to layers which actually exist, because in the same animals the relative number of lamellæ so obtainable is approximatively the same, and because, as I shall subsequently show, they correspond to continuous layers of flat cells in the substance of the cornea, which, we are justified by all analogy in assuming, cover free surfaces.

When a cornea is placed 15 to 25 minutes in solution of chloride of gold, and is then allowed to remain exposed to a bright light for several days in distilled water, made faintly sour by adding a few drops of acetic acid, there will usually be seen interspersed through its substance large nuclei, surrounded by a dark purple granular deposit, which is continued in straight projections of varying breadth in all directions, their anastomosis forming a network.

---

[1] The gold solution here and afterwards referred to is prepared by dissolving 1 gramme (15 grains) of chloride of gold in 200 cent. cub. (7 ounces) of distilled water.

This appearance is believed by many histologists[1] to coincide with a system of branched anastomosing cells, the dark purple deposit representing the cell and its processes. The constant presence of a nucleus in the centre of the mass undoubtedly renders the interpretation a plausible one. But it is nothing better than a hypothesis. If any one chooses to say that the presence of a nucleus in the central points of a network which varies exceedingly even in animals of the same species, is no proof that the network stands in the relation of a cell to the nucleus, the objection is unanswerable. All that the gold preparations have shown is, that the constancy with which the metallic deposit has taken place in the same general form indicates a structural peculiarity of the cornea, and the uniform presence of a nucleus in the central points indicates that there is a cell there.

To ascertain definitely the nature of the cell of which the nucleus is so easily made visible, it is necessary to have recourse to other methods.

By examining the cornea of a frog or a transverse section of a larger cornea made with a sharp razor some hours after death, with an immersion lens, it is possible to see the same large nucleus which is visible in gold preparations, and immediately surrounding it a mass of branched protoplasm which by its appearance and contours differs from the metallic gold deposit. Fig. 2 shows such a cell and processes from the ox cornea.

In a similar section sealed in aqueous humour the cell and its processes become still more sharply defined. Fig. 3 shows a stellate cell from a sheep's cornea after being sealed twenty hours.

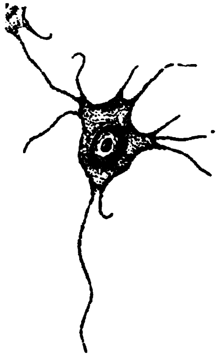


FIG. 2.—Stellate cell from ox cornea. Fresh. Mag. 800 diameters.

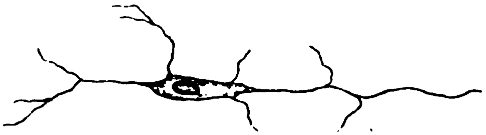


FIG. 3.—Stellate cell from sheep's cornea, twenty hours sealed in aq. hum.—Hartnack, Obj. 8, Oc. 3.

If a cornea has been subjected before the death of the animal to irritation sufficient to produce distension by serous effusion, and the excised cornea is placed for twenty-four hours in a solution of one part osmic acid in 200 water, transverse sections made without further preparation, and examined in glycerine, frequently show the stellate cells and their anastomosing processes. If the section is stained by logwood, the nucleus is also visible. It is then seen that some of the anastomosing processes are of great length. Fig. 4 shows a long anastomosing process connecting two cells in an osmic acid preparation of a rabbit's cornea. The other processes are not shown. The length in the figure is the apparent length seen under the microscope as nearly as could be judged by the eye.

---

[1] See, for example, Rollett, Stricker's Handbook p. 1101 (German edition).

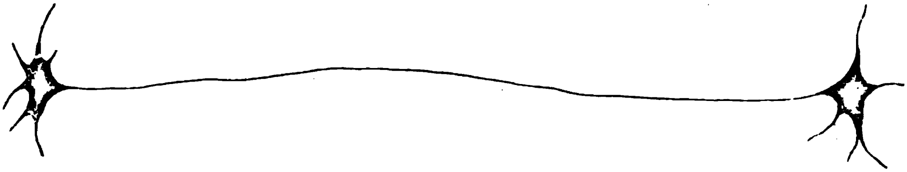


FIG. 4.—Stellate cells with anastomosing processes, from a rabbit's cornea. Osmic acid preparation.—Hartnack, Obj. 8, Oc. 3.

To demonstrate the branched cells of the cornea, I have lately practised a more satisfactory method than any other previously known to me, the object aimed at being to inject the interfascicular spaces by gold solution from the carotid. When sufficient pressure is maintained for a few minutes after the eyeball has become tense, the solution penetrates the cornea from the conjunctival vessels. I have then usually placed the excised eyeball entire in gold solution for about an hour, and at intervals made small incisions at different parts of the corneal surface, and then placed the eye, still entire, for twenty-four hours in faintly acid water. When the operation has been successful, such a cornea presents under the microscope an appearance that will strike a histologist who sees it for the first time with astonishment. Long, straight, anastomosing fibres cross the field transversely and obliquely in all directions. These fibres have all the objective characters by which we distinguish elastic fibres, and the stellate cell-protoplasma, shrunk by the solution, is seen adherent to the central points of the network. Such preparations as I have hitherto obtained were examined in glycerine, in which unfortunately after a very short time the fibres cease to be visible.

In one of my preparations I cut the cornea in small fragments with a knife, and then succeeded in obtaining isolated cells with parts of the processes of various lengths still adherent.

My best preparations of this series were from the cornea of young rabbits.

In studying the nuclei of the different corneal cells, it is to be borne in mind that the stellate nucleus can always be recognised by its size. It is larger than the nucleus of any other cell which is found in the cornea, and is the only cellular element that has been usually seen. The so-called cornea-corpuscle of authors is, as can be seen by their figures, nothing but this nucleus surrounded by amorphous deposit in the interfascicular spaces.

In a frog's cornea, sealed in a mixture of gold solution and acetic acid, very delicate spindle elements are sometimes visible, but they are seen much more satisfactorily in a cornea injected from the carotid by gold solution. They can be readily recognised in the same field as the stellate cells, and in a good preparation their number is very striking. They lie in parallel chains, distant from each other by the breadth of a primary bundle. Two can frequently be seen lying side by side in the same interfascicular space. The small size of the nucleus—smaller than any nucleus that has been hitherto recognised—and the disposition of the scant protoplasma in spindle shape, distinguish them from the stellate cells. In a frog's cornea injected by gold, it sometimes happens that the spindle cells processes and nuclei are visible, whilst nothing of the stellate cells but the nuclei is visible. Larger spindle nuclei and cells are seen in the tracts of the nerves, and between the larger cornea bundles. The above methods are alone reliable for demonstration of the spindle cells. They are essentially distinct from the stellate cells, with which they can never be confounded when they have been once seen.

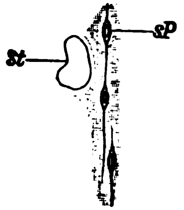


Fig. 5.—From cornea of a frog injected by gold solution from the aorta. *Sp*, spindle cell and nucleus. *St*, nucleus of a stellate cell.—Hartnack, Obj. 8, Oc. 3.

The size and relative position of the spindle cells towards each other and to the stellate nucleus is shown in Fig. 5. The recognition of spindle cells in the cornea, apart from its interest, looked at from a purely histological point of view, is of great importance, as we shall afterwards see in studying the inflamed cornea. In inflamed tissue they are shown conspicuously by nearly every method of investigation usually employed, and they have been confounded with white blood corpuscles on the one hand, and with products of "proliferation" on the other.

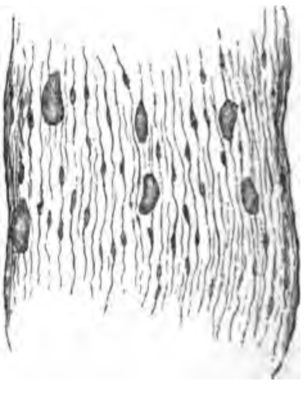


Fig. 6.—Spindle elements in muscular fibre of frog. Gold and acetic acid mixture.—Hartnack. Obj. 10 (immersion), Oc. 3.

These spindle cells of the cornea correspond in size and position relatively to each other, and to the primary bundles with similar spindle elements in muscular fibres, which I described in a previous paper in this Journal (September 1874), as will be evident from a comparison of Fig. 5 with Fig. 6.

In the previous paper on muscle, being then ignorant of the existence of these fine spindle elements in connective tissue, I termed them, in my description of Fig. 6, "longitudinal fibres of elastic network," and in the text I spoke of them as "fine fibrillæ which present oval swellings at short intervals." I also stated that they communicate with a transverse network, which encloses the primary bundles in its meshes. Subsequent investigations have shown me that I was mistaken in regard to this supposed communication between the two sets of fibres. The longitudinal elements seen in Fig. 6 are chains of minute spindle cells, which lie between the primary bundles of muscle, and are distinct both from the muscle fibrillæ and from the transverse network.[1]

When the temperature produced by the solution of caustic potash in an equal weight of distilled water falls to 107°–105° Fahr., a cornea, or part of a cornea, placed in the solution at that temperature becomes completely dissolved, with the exception of masses of cells, which can be seen isolated or in connexion with each other, when a part of the altered corneal mass is examined in a drop of the solution.

For a more complete account of these cells, the reader is referred to the paper in which I described them, in the *Proceedings of the Royal Society*, No. 155, 1874. In the Plate which accompanies that paper, figures are given, showing the relative position of the cells to each other. Fig. 7 shows the size and form of some of these cells.

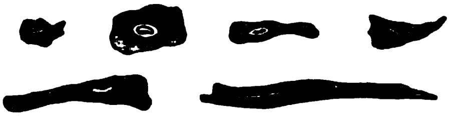


FIG. 7.—Flat cells from ox cornea by potash solution.—Hartnack, Obj. 8, Oc. 3.

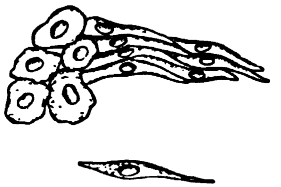


FIG. 8.—Isolated flat cells from obliquely cut sheep cornea two days sealed in aq. hum.—Hartnack, Obj. 8, Oc. 3.

In sealed aqueous humour preparations in which the cornea has been carefully cut obliquely, the same cells are seen isolated singly and in small masses, as is shown in Fig. 8. They are then seen as hyaline bodies, with a slightly projecting, faintly-tinged nucleus. In a preparation in which they are visible, they can usually be traced from the obliquely cut surfaces a certain distance into the structure. Sometimes, but much more rarely, a preparation is obtained, in which their position relatively to the bundles is distinct. Such a preparation is represented in Fig. 9. It is then seen that the long narrow cells are applied to the surfaces of the primary bundles, and that their edges are in contact after the manner of an epithelium, although, as will be seen from the figure, some of the cells become disintegrated, and disappear during the manipulation. In gold preparations, which have been prepared by placing the whole bulb for one to one and a half hour in the solution, removing the surface epithelium and making incisions in the cornea, and finally excising it and placing it in acidulated water, the polygonal and rounded cells can be seen to form layers in the substance of the cornea. Successful preparations of these cells by gold in the uninflamed cornea are very rarely obtained. In a very large number of corneæ treated in different ways by gold, I have only seen them three or four times. If the cornea has been irritated for a few hours, they are more frequently seen in gold preparations.

---

[1] I take this opportunity of correcting a misapprehension which I find some readers of my previous paper have fallen into, through my neglecting to state that the *acetic acid* which I used was not glacial acetic acid, but the weaker preparation known in England in commerce as "concentrated."

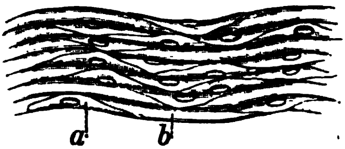


FIG. 9.—From frog's cornea sealed in aq. hum. Long narrow cells seen lying on the primary bundles. *a*, Cell. *b*, Part of primary bundle from which the cell has disappeared.—Hartnack, Obj. 8, Oc. 3.

It is to be noted that, although layers of the polygonal or rounded cells of the ordinary epithelial type can be seen of various sizes in the cornea, both in potash and aqueous humour preparations, patches can be isolated which are continuous with the long narrow cells that cover the primary bundles.

It was shown some years ago by Schweigger-Seidel, that there are cells in the cornea which show the dark lines of epithelium when treated by nitrate of silver. He was for an unusually long time in the minority of one, in which Carlyle says all truth begins. But the demonstration of the fact is not very difficult. Of all the animals on which I have operated, with a view to the demonstration of this epithelium, the cornea of the mouse is the best adapted, and gives most frequent success. The cornea is placed, unwashed, in solution of 1 part nitrate of silver in 200 or 400 water for one to three minutes, dipped for a second in salt solution of the same strength, and then exposed to sunlight in glycerine. The preparations which succeed best are those in which the ground substance is only slightly stained, being seen as faint brown islands scattered over a white field, instead of the darker and more abundant stained ground substance of ordinary silver-stained corneæ. The dark epithelial lines can be seen traversing the white groundwork, generally appearing to be interrupted when they come in contact with a stained patch of ground substance, and this usually prevents the completion of the visible boundaries of the cell outline. The interruption is, however, only apparent, the black line being lost in the dark mass which surrounds it, as may be seen when a patch is only slightly stained. The line can then be frequently traced over and beyond a dark island, completing the cell-contour.

Fig. 10 shows part of a successfully stained epithelial surface in the interior of a mouse's cornea, in which this continuation of the dark lines over the stained islands is in some parts visible. In the preparation there is another similar layer below the one represented, cornea substance intervening.

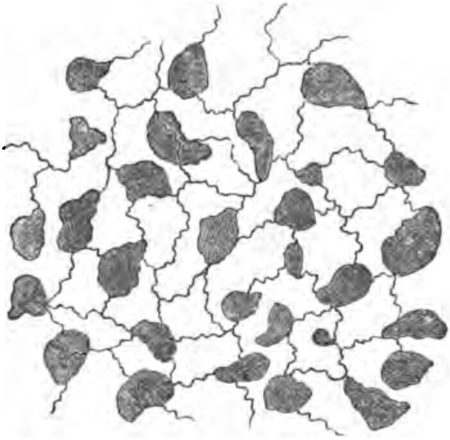


Fig. 10.—Part of a layer of flat (epithelial) cells in the substance of a mouse's cornea. Silver preparation.—Hartnack, Obj. 7, Oc. 3.

It is important to note that the cells indicated by the dark lines in Fig. 10 belong to a class of larger size than those of the layers of polygonal cells seen in the mouse's cornea in gold preparations.

The ordinary appearance presented by a cornea which has been treated by nitrate of silver, solid or in solution, is represented in Fig. 11.

In such a preparation the silver has completely permeated the substance of the fibrillary bundles. Wherever there is an uncoloured space, we know that the ground substance is wanting to an extent sufficient to be entirely out of focus. In other circumstances these spaces may be found filled with a black albuminate of silver. Sometimes a large unmistakable nucleus of the stellate cell can be seen in each space, establishing the relation between the cell and the space. But the space is larger than the cell, does not correspond to it accurately in outline, and the colourless space-processes are very much broader than the processes of the stellate cell. It is evident that the silver permeating the fibrillary substance with ease, either does not readily find its way into the spaces, or if it does, that the spaces are bounded by a structure that does not stain by nitrate of silver. We have seen that it is possible to show the dark lines of epithelial cells in the walls of the spaces; and it is thus clear that either the substance of the cells does not stain, or that in such preparations the silver does not penetrate them. The fact of the dark lines being present would seem to show that there is a comparative difficulty of staining as regards the cells.[1] But that the epithelial layers in the cornea form an obstacle to the passage of silver solution is shown by preparations obtained by placing the bulb entire in the solution for a few minutes, and subsequently removing the upper from the under layers of cornea substance. It is then often found that the silver solution has diffused itself equably through the whole of the fibrillary substance of one layer, but has not penetrated at all to the layer below it; from which I infer that a layer of flat cells in the cornea, and the delicate sub-cellular membrane on which such cells always lie, present an obstacle to the easy passage of fluid.

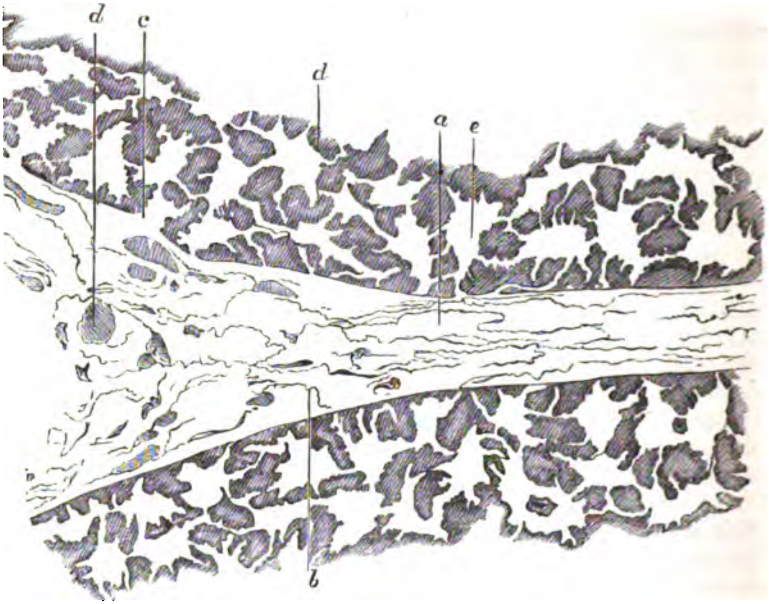


FIG. 11.—Section of a rabbit's cornea, stained by nitrate of silver.
a, Lymphatic vessel enclosing nerve.
b, Line between the epithelium.
c, Continuity of space with vessel.
d, Ground substance.
e, Space in which the stellate cell lies.

The demonstration of layers of flat cells in the cornea, and of an epithelium covering the spaces, shows that Recklinghausen was mistaken in supposing that the colourless stellate spaces and connecting processes are lymph canals (saft-kanälchen), channelled out of a substance which cements the fibrillary bundles. Each stellate space is formed by the superposition of lamellæ, one over the other, the surfaces being at points corresponding to the situation of the stellate cells, removed from each other to an extent sufficient to enable the distance to be appreciated under the microscope. In a silver cornea where the staining is pronounced, the distinction of the surfaces where they are in contact is lost to the eye. Thus, a " space " simply shows that two membranes, which are at other points in close contact, have at one point left a gap between them, and it is in these gaps that the stellate cells are to be found.

---

[1] Analogous cells can be stained in the subcutaneous tissue by an interstitial injection of silver solution, as can be shown by thus injecting the subcutaneous tissue of a mouse's back immediately after it has been killed.

I have previously shown that the canals in which the nerves lie are lined by an epithelium, and are in reality large lymphatic channels, and, as will be seen by referring to Fig. 11, there are points in the lymphatic where the colourless spaces adjoining communicate with the uncoloured outline of the vessel. At these points it is certain that the fibrillary or ground substance fails, but it does not follow that the uncoloured breach in the outline of the wall of the vessel represents the extent of the actual free communication. That there is, however, a free communication at these points, between the lymph channel and the spaces, can be satisfactorily made out by watching the movements of bacteria in a cornea which has been placed in conditions favourable to their development. It can be seen that they move in the large lymph channel, but that at certain points one oscillating rod after another leaves the vessel and enters an adjoining space, and that always at the same point. When, as we shall afterwards see, white blood-corpuscles enter the inflamed cornea, they are sometimes found in considerable numbers in these lymph channels between the nerve and the wall of the channel, and it can then be seen that they make their way first into those spaces which are next the vessel. Whatever the nature of the communication may be—and it may not be more than a slight aperture at the angle of junction of the epithelium of the vessel—it is sufficient to permit the passage not only of fluid, but of minute solid particles between the lymph channel and the spaces.

The structure of the cornea, as shown by the above histological methods, can be described shortly as follows:—The fibrillary or ground substance consists of parallel bands, whose breadth is nearly the diameter of a human red blood-corpuscle, and whose thickness is somewhat less than their breadth. These bands, which I have described for the first time, and which I call primary bundles, are covered by narrow, elongated flattened cells, after the manner of an epithelium. Injected masses can be made to pass between the primary bundles, the spaces into which they pass being the corneal tubes of Bowman. These tubes are not, therefore, canals, with a complete unbroken wall, but are the spaces left between the bundles, on account of the somewhat cylindrical or bevelled form of their borders. The walls of a corneal tube are formed by parts of the surface of several contiguous bundles.

The primary bundles are collected in larger bundles, and on the surface of these larger bundles are found layers of small flattened polygonal cells. The junction of the cells of the primary bundles with those of the secondary bundles shows that there is a continuous free surface for the passage of fluid from the surface of the layer into the corneal tubes between the primary bundles.

The secondary bundles are combined so as to form large flattened tracts, which are separated into distinct compartments by a membranous investment, which is covered by epithelial-like cells. If it were necessary to give these tracts a distinctive name, the term tertiary bundles might be applied to them. These are further arranged in layers, which can be appreciated by the naked eye, and the surfaces of which are covered by the larger cells shown in Fig. 10.

The flat cells of the cornea being thus arranged in layers, may fulfil all the functions which are usually attributed to the epithelium of a serous membrane.

Between the primary bundles are chains of very small spindle cells. They are entitled to the name of cell, notwithstanding their small size, because they are composed of a well-marked nucleus, surrounded by a small quantity of protoplasm. The processes of each cell anastomose with those next it.

In spaces left by the separation from each other of the laminæ, formed by the bundles, are the large stellate cells, from the borders of which radiate in every direction, but mostly transversely and obliquely, a great number of transverse processes. The nucleus of this cell has formed the basis of the notions generally taught regarding the corneal cells. This nucleus and the surrounding spaces, filled with dark gold or silver deposit, constitute the appearances erroneously figured in the text-books as the corneal cell.

The processes of the stellate cells pass between the bundles of the upper and lower laminæ ; and one result of this interlacing is the binding together of the bundles and laminæ. The anastomosing fibres penetrate between the flat cells at the angles constituted by their points of junction.

The bundles are thus woven into a texture by the stellate fibres. In Fig. 12 I have represented an appearance seen in a section of a cornea, sealed up in a solution of 1 part of common salt and 10 of water, which illustrates this relation between the stellate cells and the fibrillary tissue.

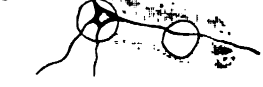


FIG. 12.—Transverse section of sheep's cornea, sealed in 10 per cent. salt solution.—Hartnack, Obj. 8, Oc. 3.

The circular apertures which are seen to form a margin round the shrunken cell, and under one of which a fibre dips to reappear through another, I have seen only in preparations thus sealed up in strong salt solution.

For the sake of readers who endeavour to reconcile my views with those expounded in the text-books, it is necessary to explain that the recognition of primary bundles, the flat cells which cover them, the spindle cells which lie between them, and the layers of small polygonal cells, has been brought forward for the first time in the papers I hav elately published. The distinction between the large epithelium seen in silver preparations and the stellate cells, as different anatomical elements, is also new, and was first brought forward in the same papers. The establishment of these anatomical facts has been the result of several new histological methods, the wider application of which will, I believe, add much to our knowledge of the intimate structure of the tissues. Of these the chief are the isolation of cells by saturated solution of potash, the application of which will be further minutely described in the January number of the *Quarterly Journal of Microscopical Science*, in a paper on the Structure of Cartilage; the detection of elements *in situ*, which have hitherto escaped notice by simply sealing fresh tissue in aqueous humour or blood serum, by running Brunswick black round the cover-glass, and examining the preparation from day to day;[1] a more extended application of the same method of fixing cellular elements by gold solution, by which I was able to obtain preparations of flat cells in muscular fibre (*Edinburgh Medical Journal*, September 1874),—which is distinct from the ordinary staining by gold, and about which I shall have more to say in a future number;—and the demonstration of the relations of the different kinds of cells to each other and to the tissues by a method of gold injection, imagined by Dr Ewart and myself, some of the results obtained by which we will describe in a paper on the Lens in the January number of the *Journal of Anatomy and Physiology*.

These methods applied to other forms of connective tissue yield results essentially similar to those described in regard to the cornea. The sciatic nerve of a frog, carefully cut longitudinally, and sealed in serum, shows, after a few days, sheets of polygonal cells which belong to the neurilemma, the existence of which has been previously demonstrated by Ranvier, in silver preparations. In the serum preparations I have further found, after twenty-four hours, isolated primary bundles, differing from those of the cornea only in being puckered transversely—the transverse puckering probably resulting from the less stable form of the tissue.

Fig. 18.—Primary bundle of neurilemma of the frog. Sealed serum preparation.—Hartnack, Obj. 8, Oc. 3.

I have further observed, within a few hours after the sealing of the preparation, lying isolated between the cut edges of the neurilemma, branched cells, with scant, finely granular protoplasma, and long slender glistening fibres—often of great length—which presented the objective characters of elastic fibres.

---

[1] See Proceedings of the Royal Society, No. 158, 1875.

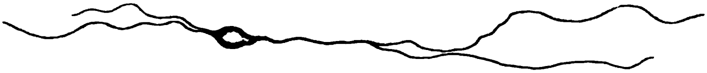


Fig. 14.—Branched cell from neurilemma of sciatic nerve of frog, isolated. Sealed in aq. hum. three hours.—Hartnack, Obj. 8, Oc. 3.

In the paper already referred to, I will endeavour to show that hyaline cartilage is composed of primary bundles, arranged in laminæ, which are covered by layers of flat cells, and that it is in spaces between the laminæ that the stellate cell (the ordinary cartilage cell) is found, and that there is no closed capsule, as has been generally supposed.

Dr Ewart and myself, in the paper on the structure of the lens, will show that the lens fibres are covered by elongated flat cells similar to those which cover the primary bundles of the cornea, and that there are further layers of rounded cells which cover larger bundles of the fibres.

In the mesentery of the frog, I have been able to isolate by potash solution a layer of small elongated narrow cells, similar to those described as being peculiar to primary bundles. Fig. 15 represents a few of these cells which formed part of a layer which nearly covered the field of a No. 8 objective of Hartnack.

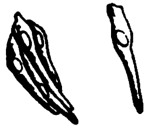


Fig. 15.—Cells from mesentery of a frog. Potash preparation. Hartnack, Obj. 8, Oc. 3.

To prevent any possibility of misapprehension, it is well to state that these cells have never been previously described, and that as yet I have not seen them, except in a potash preparation.

Essentially the same structure was explained as regards tendon in the paper published previously in this Journal; but it is necessary to revert to the subject in order to correct a misconception of my views, for which, as it has been shared by reviewers in the *Centralblatt* and *Revue des Sciences Médicales*, and by Professor Turner in his Introduction to Anatomy, want of explicitness on my part must be partly responsible. What I described as a secondary bundle has been understood to be the object I had in view when I used the term primary bundle. As far as I know, the distinct individual structure described by me as a primary bundle, has not been previously recognised. By turning to Ranvier's work, *Traité Technique d'Histologie*, p. 354, it will be at once seen from his figure (Fig. 119) what he means by a *faisceau tendineux;* and, as far as I can gather, the same object is what German and English writers have designated as a "bundle" of tendon. It is the somewhat conical or circular mass of tendinous substance, seen enclosed by the stellate spaces and their narrower prolongations, in a transverse section. The next element into which this bundle (faisceau) has been held to be resolvable, is the delicate ultimate fibrilla.

But between this bundle or faisceau and the fibrilla I hold that there is demonstrable a definite uniform structure—a system of parallel flattened cylinders,—and it is a number of these placed side by side in close juxtaposition which form the faisceau or "bundle" of authors. In order to distinguish them from the ordinary "bundle," I termed them primary bundles.

Indications of these narrow primary bundles are seen occasionally by various methods, but frequently they are not seen at all in preparations otherwise apparently good. They may be seen sometimes very distinctly in tendon sealed up in blood serum. A sealed preparation of tendon shows in a few days the ultimate fibrillæ with great distinctness, and for their demonstration I recommend this method in preference to any other, on account of its simplicity and certain success. But it can be further seen that these fibrillæ are arranged in parallel bands of a breadth approximating that of the primary bundles of the cornea, and that a number of these parallel bands compose the ordinary "bundle" or *faisceau*. One of the Ranvier cells covers transversely three or four of these primary bundles or bands, whilst, as is known, it only covers part of the ordinary "bundle," or what I call a secondary bundle.

I succeeded in breaking up a tendo Achillis of a nearly mature sheep fœtus into the primary bundles by long maceration in weak chromic acid, and at the same time the narrow elongated cells that cover them were, by a rare chance, preserved. These bundles and cells were described in my previous paper, and I repeat the figures that represented the preparations.

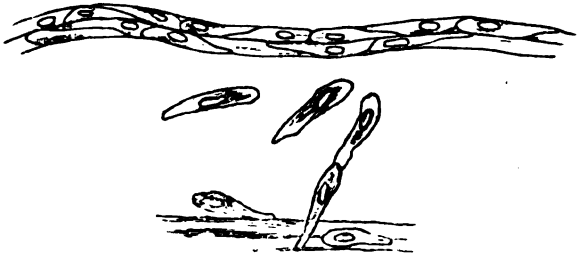


FIG. 16.—Primary bundles and their investing cells. Tendo Achillis of 14 inch sheep fœtus. Chr. acid.—Vérick, Obj. 12 (immersion), Oc. 1.

These figures, it must be borne in mind, represent the primary bundles and the cells that cover them, magnified by a No. 12 immersion lens of Vérick, with Oc. 1, and, I presume, therefore about 800 diameters.

The preparations are preserved in glycerine, and I have been able to demonstrate them to several anatomists and physiologists.

The same cells are seen in potash preparations, success in this instance being, however, rare; and also occasionally in sealed serum preparations. The two cells in Fig. 17 show their contour in a sealed preparation of the tendo Achillis of a frog, as seen by a

No. 8 Obj. of Hartnack; and in order to show their relative size and outline in reference to the cells described by Ranvier, I place beside it two of Ranvier's cells, as seen by the same magnifying power, in a preparation of the tendon of a mouse's tail, prepared as I shall presently describe.

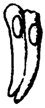


Fig. 17.—Cells of the primary bundles from tendo Achillis of frog. Sealed serum prep.—Hartnack, Obj. 8, Oc. 3.

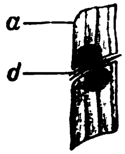


Fig. 18.—*a*, Cell of secondary bundle of tendon of mouse's tail (Ranvier's cells).
d, Protoplasm and nucleus of a branched cell lying transversely between the two flat cells. Logwood-glycerine prep.—Hartnack, Obj. 8, Oc. 3.

From a series of measurements of the cells of the primary bundles in the preserved chromic acid preparations referred to, and of the Ranvier cells of the mouse's tail, I find that the cells of the primary bundles are equal in length to the Ranvier cells, but that the Ranvier cells are five times broader than the cells of the primary bundles. The nucleus of the cell of the primary bundle is a narrow elongated body, whose length is only a half, and breadth only a fourth, of the diameter of the nucleus of the Ranvier cell.

The breadth of the primary bundle is equal to the breadth of the broadest part of the cell which covers it. And to make any further misapprehension difficult, I may add that the primary bundle and the cell which covers it have not been described by any one but myself.

In my previous paper I described and figured the cells which form part of the membrane that covers the larger bundles (tertiary) of tendon. I did not figure Ranvier's cells, because I believed that they were sufficiently well known, but I described them as covering the bundles, in no respect differing in their nature from the more irregularly-shaped cells investing the larger bundles, or the smaller cells covering the primary bundles. Ranvier, in the *Traité Technique d'Histologie*, already referred to, has lately given an elaborate description of these cells, and teaches, not that they invest the bundles, but that they are arranged in isolated rows between them. Histologists will naturally settle this question for themselves in accordance with the results of their own observations.

I suggest the employment of the following methods, which are more simple, and succeed more frequently, than staining by gold, or by the other staining methods usually employed:—

The ordinary concentrated solution of extract of logwood and alum (not crystallized hæmatoxylin, from which it ought to be distinguished) is filtered into glycerine drop by drop until the glycerine has become of a decided blue colour. Into this logwood-glycerine are placed the tendons of a newly-killed mouse's tail, and they are allowed to remain in it twenty-four hours or longer.

They are then examined in glycerine. The bundles of fibrillary substance are unstained, but the substance of the Ranvier cells and their nucleus are stained blue, and are seen apparently arranged in rows. On altering the focus it will, however, be found that the rows first seen are lost, and others placed laterally to the former ones come into view. On careful examination, by judiciously changing the focus, it can, in successful preparations, be seen that there is no part of the bundles on which a cell cannot be observed. The cylindrical form of the bundle prevents any continuous layer being seen at one focus, but the lateral junction of the superficial with the deeper cells can be made out. The cells placed laterally on the bundle are seen most easily, because the light, in passing through them, traverses a greater depth of colour. Those on the surface lying nearly flat to the eye of the observer, can sometimes only be made out with difficulty, and are further liable to be injured by the cover-glass. Parallel longitudinal lines stained a deeper blue than the other parts of the cell—corresponding to the *crêtes d'empreinte* of Ranvier—are seen in the cells in such preparations. They are shown in Fig. 18.

In preparations by this method, there is often visible between the Ranvier cells an elongated nucleus—characteristic in form of that of a branched cell—from the scant protoplasm surrounding which a slender glistening fibre can be seen dipping downwards between the bundles. This nucleus is shown in Fig. 18, *d.*

Preparations demonstrative of the same facts can be obtained by sealing up portions of mouse-tail tendons in chloride of gold solution, care being taken that the tendon is kept stretched until it has been a few minutes in the fluid. The Ranvier cells and nuclei become gradually visible, and are seen well for twenty-four hours or longer. In the most successful preparations of this kind the elongated nucleus of the branched cell can be seen in nearly every interstice left by the borders of the Ranvier cells, and the flat cells, conspicuous by their nuclei, can be seen covering every part of the bundles. This latter mode of preparation succeeds most frequently, but the logwood-glycerine preparations are most demonstrative, and can be preserved. The cells can be seen on tendons that have remained weeks in the logwood-glycerine.

The staining and chemical solutions used in demonstrating the cells of tendon, act most strongly on the cells adjacent to the wider channels between the bundles, because they not only penetrate to these cells most easily, but a larger interchange between the cell and the fluid is favoured by the retention of the latter in more considerable quantity than at the points where contiguous bundles are in contact. Consequently an incomplete staining is a frequent result, and we have then the appearance of cells arranged in rows.

In the next chapter I shall proceed to describe the changes that take place in these various elements when they are inflamed.

ARTICLE III.—*On the Pathology and Operative Treatment of "Hip" Disease.* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.

THERE is now little difference of opinion among surgeons as to the curability and proper principles of treating the early stages of hip disease, but there is not the same unanimity of opinion in regard to the treatment of the later stages, and more particularly in regard to operative interference in the more serious conditions of this articulation.

With the hope of assisting in the satisfactory solution of the latter question I wish to record some of the results of my observations and operations in connexion with this affection. I am the more anxious to bring this experience before my professional brethren because the employment of antiseptic treatment appears to me to open up new and important points in relation to operative interference in diseases of the hip and other joints.

Constitutional causes are no longer held to be the chief agents in producing hip or other joint diseases, but the tendency of surgeons now is to attribute most of these affections to *local* causes, and more particularly to injuries of all kinds. Joint diseases do undoubtedly not unfrequently occur in strumous or unhealthy patients, and are then not so amenable to treatment and less satisfactory in their results owing to constitutional and other complications; but even in these cases local injuries are usually the exciting agents of the disease.

"Hip" disease may be *acute* or *chronic* in its nature. In the majority of cases the disease is more or less chronic as distinguished from the very acute form of joint disease; but cases are occasionally met with which run their course in a few days or weeks, and end in early suppuration and rapid destruction of the joint textures. I have seen such a case—not pyæmic in its nature—terminate fatally on the tenth day, and the post-mortem examination showed suppuration of the joint, complete destruction of the articular cartilage of the head of the femur and acetabulum, and extensive destruction of the head of the femur itself and osseous walls of the acetabulum.

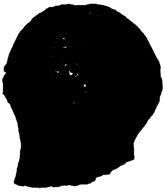


Fig. 1.

Fig. 1 illustrates the almost complete destruction of the articular cartilage of the head of a femur, with caries of the bone, from an acute case of hip disease treated by excision three weeks after the first symptoms appeared. In this case the symptoms followed an injury to the joint, and at the operation well-marked signs of acute synovitis were present, and there was also considerable destruction of the cartilage lining the acetabulum. The case will be again referred to in connexion with the notes on excision. Holmes[1] records a case of hip disease of one month's standing, and refers to another related in the work of MM. Martin and Collineau, in which death took place from an acute abscess of the hip within a few days of the first appearance of the symptoms. In the latter case ulceration of the ligamentum teres and signs of synovitis were the chief conditions found.

The question as to which joint structure is primarily affected in hip disease must still be considered a disputed one, and before expressing my own opinion and illustrating some of my observations, I will briefly refer to other authorities on this subject. Syme[2] says, "The disease may be then regarded as in general consisting primarily and essentially of chronic inflammation in the bones composing the joint, of which the pelvic portion usually suffers more than the femur." Holmes[3] remarks, "It is quite possible that different structures may be affected in different cases, but my own opinion is that in many the disease begins by an inflammation of the ligaments." "Mr Aston Key was of opinion that the inflammation begins usually in the ligamentum teres, and although the view was founded on an erroneous theory of the functions of that ligament, still the main argument on which it is based seems to me, sound, as showing that some part of the ligamentous apparatus is generally very early affected." Holmes remarks further, "Whether the bones are usually affected or not in the commencement of the disease it is not easy to judge. It is probable enough that there may be cases in which the inflammation spreads outwards from the bones towards the capsule, while in others, and those the most common cases, its course is the reverse, viz., from the capsule towards the bone; but the point is one very difficult to determine anatomically." Bryant[4] distinguishes between synovial and osseous symptoms in cases of hip disease, and considers that the disease of this and other joints most frequently originates in ostitis in young patients. Barwell[5] writes, "First as to the structure in which disease of the hip joint may commence. There can be no doubt that it may begin in the synovial membrane and in the bone like other joint diseases; there is no reason to suppose, nor is there the slightest proof that it may commence in structures in which diseases of other joints do not begin—for instance, in the ligaments;" he writes further, "We have seen that when the sub-synovial tissues in which ligaments are placed inflame, the ligaments themselves suffer, soften and become thickened, or absorbed, as the case may tend."

Bauer,[6] in his researches on the ligamentum teres, says, "Collectively I look upon the ligamentum teres, therefore, as the essential nutritive appendix of the head (of femur), and its destruction during the epiphyseal period as tantamount to the destruction of the head itself." He also refers to the pathological facts:—(1) That this ligament is very early destroyed in hip disease; (2) That the head of the femur is invariably reduced excentrically in size, and, in a few exceptional cases, thrown off *in toto*.

---

[1] Diseases of Children, 2d edition.

[2] Principles of Surgery, 5th edition.

[3] Loc. cit.

[4] The Practice of Surgery.

[5] On Diseases of the Joints.

[6] Lectures on Causes, Pathology, and Treatment of Joint Diseases.

Sayre[1] writes, "The pathological changes that these causes produce are either synovitis, from a rapid and excessive change in temperature, or violent wrenches or strains tearing from its attachments the ligamentum teres, thereby inducing necrosis of the head of the femur from rupture of the bloodvessel which supplies it; or concussions, falls, jumps, blows, will produce an extravasation of blood in the articular lamella, which sets up an inflammation; the cartilages soon die on account of their low vitality, become eroded and necrotic; interstitial absorption of the bones takes place, due to the constant pressure from muscular contraction, and finally exfoliation. But no matter what the cause, or which of the tissues originally involved, they all, sooner or later, become commingled and included in the general destruction."

Having myself, with the aid of antiseptic treatment, incised and examined many diseased hip-joints at an earlier stage of the disease than that in which incisions are usually practised, I have come to the conclusion that, although the disease may originate at times in the synovial membrane or pelvic bones, it most frequently commences in the head of the femur. When examining cases of the disease in the early stage of destruction of the joint textures, I have found in the majority little implication of the acetabulum or its cartilage, but well-marked destruction of the cartilage covering the head of the femur, and other signs of pathological changes in this bone. I can confirm the observations of Holmes, Bauer, and others as to the early destruction of the ligamentum teres, for I have invariably found this ligament wholly or partially destroyed, but I think that this condition is secondary to osseous or synovial inflammation, and that it does not originate in inflammation of the true ligamentous tissue.

The very acute cases to which I have referred, have, I think, their origin in acute synovitis, which is quickly followed by suppuration and disorganization of the joint structures, and I also believe that sometimes synovitis of a more chronic nature may be the primary origin of hip disease.

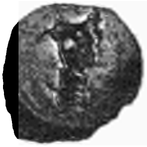


Fig. 2.

The pathological conditions which I have observed in the head of the femur, are—(1st.) More or less destruction of the articular cartilage, with signs of articular ostitis and separation of the cartilage from the bone, to a greater or less extent. This condition is illustrated in Fig. 2. In some cases the entire cartilage is loosened and separated from the bone, as is well shown in Fig. 3. The cartilage in the preparation from which it was taken could be lifted off from the bone like a cap, and the bone underneath was softened and inflamed.

---

[1] On Disease of the Hip-Joint.

(2d.) Distinct carious cavities in the head or neck of the bone, with or without necrosed portions of osseous tissue in their interior, in addition to more or less destruction of the cartilage and superficial articular caries. Figs. 4 and 5 are taken from examples of this condition.

(3d.) Inflammation and suppuration in connexion with the epiphyseal line between the head and neck, attended with softening and destruction of the surrounding bone, and more or less separation of the head from the neck.

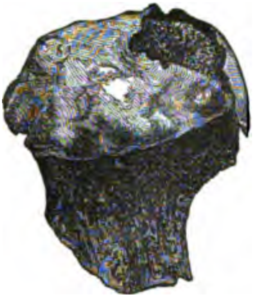


Fig. 3.

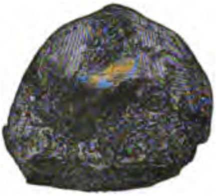


Fig. 4.

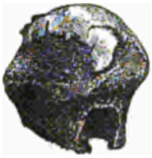


Fig. 5.

Figs. 6 and 7 are taken from the section of a preparation which was a well-marked example of this change.

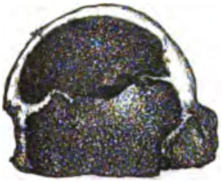


Fig. 6.

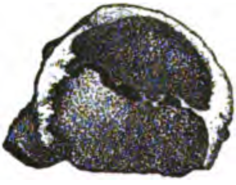


Fig. 7.

(4th.) In the more advanced stages of the disease, or in cases more acute in their progress, the head of the bone, and in some cases the neck, is more or less destroyed by caries,

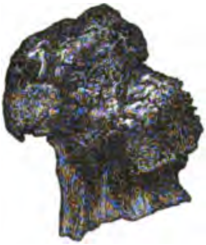


Fig. 8.

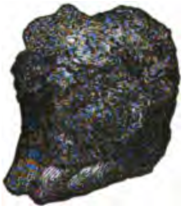


Fig. 9.

as is illustrated in Figs. 8 and 9. In one case under my care the neck of the bone was almost completely destroyed, so that on slightly moving the bone it broke, leaving the remains of the head in the acetabulum.

(5th.) I have met with two cases of disease of the hip, in which the whole femur, ilium, and probably others of the bones, were diseased through their whole structure. The outer table of these bones was thin, and easily cut with a knife, and the cancellated texture was composed of fatty matter, with a few osseous plates and threads. Both these cases were in young adults, and the head, neck, and a portion of the shaft of the femur of one of them, is illustrated in section in Fig. 10.

In all the cases illustrated under the first three heads, there was little implication of the acetabulum, except at the point of attachment of the ligamentum teres, and any diseased condition of this cavity which did exist, gave rise to no trouble after the removal of the diseased head of the femur.

In all, the synovial membrane was thickened, but, as I have already explained, I consider the synovial involvement to have been secondary in these cases. In all, there was suppuration of the joint, limited in some cases, but in all well established. In none had the abscess or suppuration opened externally.

Had the disease in these cases originated in the synovial membrane, I should have expected to find the cartilage and walls of the acetabulum more implicated.

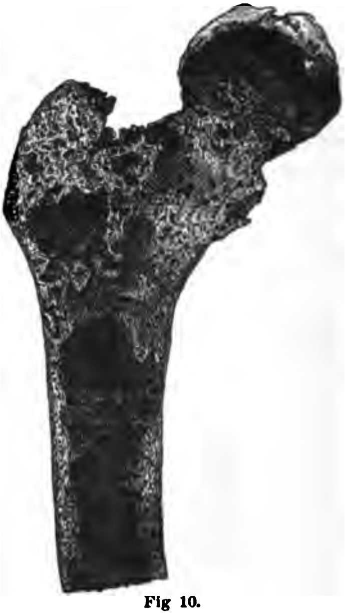


Fig 10.

When an old-standing diseased hip-joint is examined it is not easy to determine in which texture the disease commenced, for all are more or less involved; but my observations prove, I think, that it is most common for hip disease to originate in the head of the femur. I could have figured many more preparations showing similar pathological changes in the head of the femur, but it seemed to me unnecessary, as all the preparations in my collection not here illustrated can be classed under one or other of the heads already described.

Caries or necrosis originating in the great trochanter or bone near it may lead to disease of the hip-joint or may simulate it. I have in Fig. 11 illustrated a condition of the kind in which the great trochanter is affected with caries which has almost completely destroyed this portion of bone. The hip-joint was not affected in this case. Velpeau, Ferguson, Teale, Erichsen, and other surgeons have excised this process for caries, and Mr Gant[1] writes thus: "Excision of the trochanter major may occasionally prove sufficient; caries of this portion of the femur existing without disease of the hip-joint. I have had one such case, and with a successful result."

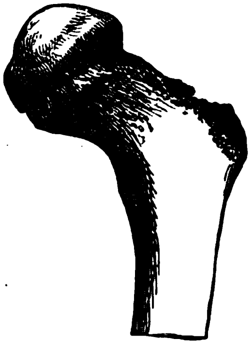


Fig. 11.

The condition of the acetabulum in hip disease is influenced by the site of origin of the disease, the acuteness of its progress, and the length of its standing. In disease originating in the head of the femur I believe that this cavity is at first little affected, but if the disease is uninterfered with, rapid in its progress, or of long standing, the articular cartilage of the acetabulum and its osseous walls become more or less destroyed. A common result is that in which the cavity becomes enlarged and deepened, as is illustrated in Fig. 12. In other cases the destruction is more complete, and the floor of the cavity in whole or part disappears, forming an opening communicating with the pelvis, and in some cases allowing the head of the femur to pass into this space. Such a condition is shown in Fig. 13, and is taken from a preparation which I removed after death; the head of the femur, or rather what remained of it, lay in the pelvis in this case.

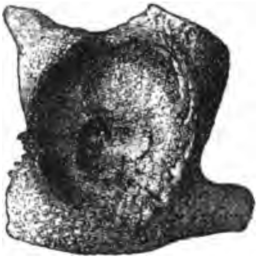


Fig. 12.

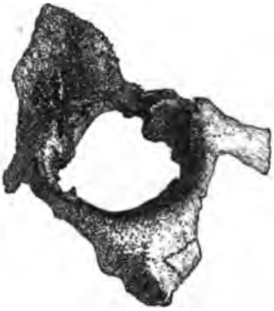


Fig. 13.

Again, limited portions of the brim or walls of the cavity may be destroyed by caries, or become necrosed, or the disease may involve a considerable portion of the ilium.

The similarity between the pathology of the shoulder and hip joints is very marked, and I could from my collection illustrate conditions in the head of the humerus exactly resembling those which have just been figured in connexion with the head of the femur. The glenoid cavity of the shoulder-joint, like the acetabulum, is frequently found comparatively little involved in the earlier stages of disease of the articulation.

---

[1] Lettsomian Lectures on Excisional Surgery of the Joints for Disease.—*Lancet*, 15th July 1871.

In connexion with the subject under consideration, it is interesting to study the conditions which result in cases of hip disease that undergo a natural cure.

In the early stage of the disease a cure may take place with little or no alteration of the joint structures or functions; but when suppuration has taken place, and more especially if it has been left unrelieved for some time, the joint does not recover without some changes.

The simplest of these changes is fibrous anchylosis, which is usually preceded by the destruction to a greater or less extent of the cartilage and superficial articular surface or surfaces, and by some enlargement or deepening of the acetabulum. New osseous deposits may also take place in and around the diseased joint.

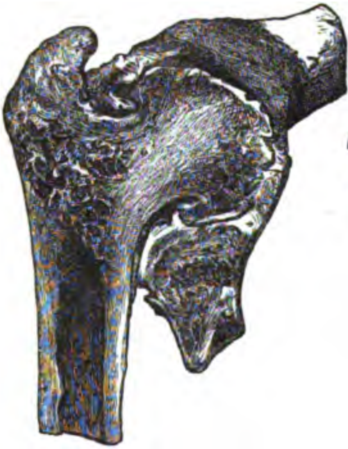


Fig. 14.

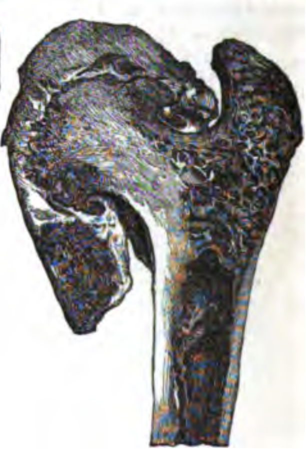


Fig. 15.

This form of anchylosis is well shown in Figs. 14 and 15, which are taken from a section of a hip-joint removed by me after death. In this case the disease had become cured, but the limb was shortened fully an inch, and its movements at the hip were very slight. This preparation is now in the Anatomical Museum of the Edinburgh University.

Fig. 16 is taken from the section of an anchylosed hip removed after death from a patient who had hip disease for nearly twenty years. There were several sinuses opening externally, and passing down to diseased bone in the acetabulum, and the limb was fixed in a flexed position. The head of the femur was in part destroyed, and connected to the acetabulum by fibrous tissue, and there were several small pieces of diseased bone lying loose in the cavity.

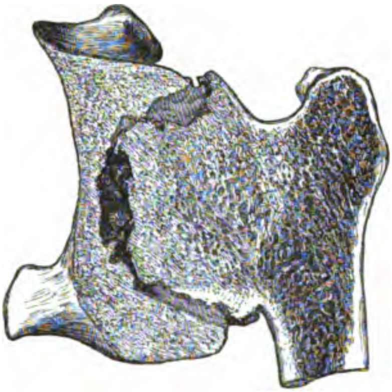


Fig. 16.

Occasionally complete osseous anchylosis takes place, the remains of the head or neck of the femur and the pelvic bone forming a continuous bony structure. Of this condition, I have in my collection two preparations, one of which is illustrated in Figs. 17 and 18, which are taken from a front view and section of the preparation.

In other instances, the remains of the head or neck of the femur become displaced, usually upwards, owing to the destruction or enlargement of the acetabulum; or, in rarer cases, a complete dislocation takes place. In these cases the cavity of the acetabulum becomes filled up more or less, or obliterated altogether, and what remains of the head or neck of the femur articulates with a new cavity or surface on the edge of the acetabulum, or on the dorsum of the ilium, thus forming a kind of new joint.

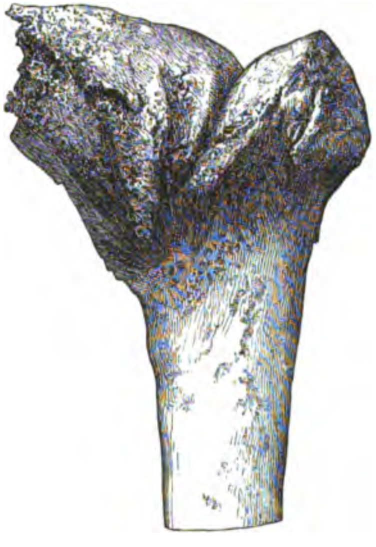


Fig. 17.

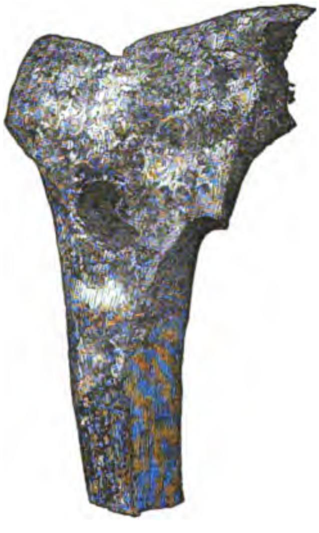


Fig. 18.

In Fig. 19 a condition of this kind is illustrated from a case in which the head and greater portion of the neck of the femur had been destroyed; the remains of the neck forming a rounded surface, which articulated with a new and shallow cavity on the upper edge of the acetabulum. The orginal acetabulum no longer existed, but had become obliterated.

In these conditions of natural cure, there may or may not be deformity of the limb. There is always shortening, and unless the case has been carefully treated, the thigh is frequently fixed in a flexed position, forming a more or less acute angle with the pelvis, and so rendering the member comparatively useless.

These remarks conclude my observations on the pathology of hip disease. To some of these observations I shall again refer in connexion with the operative treatment of this affection.

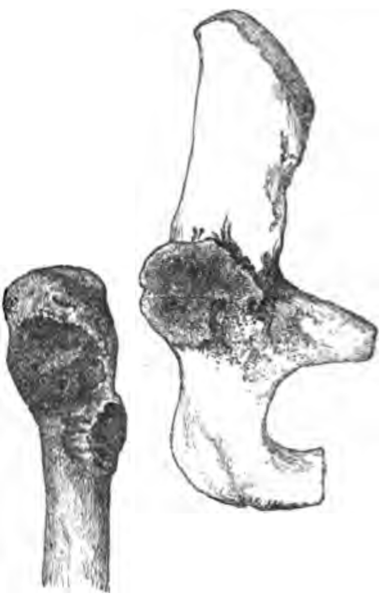


Fig. 19.

ARTICLE IV.—*On the Uterine Souffle and the Fœtal Heart.* By JAMES CUMMING, M.D., F.R.C.P. Ed., Physician to the New Town Dispensary, Extra Physician to the Royal Hospital for Sick Children, Edinburgh.

(Continued from page 327.)

(Read before the Obstetrical Society of Edinburgh, 14*th July.)*

A few Observations on the History of the Desire to Predict the Sex of the Fœtus in utero.—In connexion with what may be termed the practical use of the diagnosis of the fœtal heart, I have extracted from Velpeau's[1] interesting treatise the following historical notes, showing how, from the earliest times, the probable sex of the child has been a matter of anxious preconsideration :—

"Although the future mother may not trouble herself much whether the child is to be a boy or a girl, still, the husband is often much exercised regarding that event. The hopes of an entire family may rest on the issue (as in the case of a strictly entailed estate, where large properties may pass from one family, perhaps to some distant connexion, in the absence of a male heir).

---

[1] Traité des Accouchements.

"The anxiety to satisfy the public curiosity as to the probability of the heir to a reigning dynasty, etc.

"The gods, the stars, divines, and sorcerers, have in their turn been invoked.

"At Rome, Livia Drusilla, who was divorced from Tiberius Claudius Nero by the order of Augustus, whom she afterwards married, had the patience when pregnant, to complete the hatching of a hen's egg by the heat of her hands, being persuaded that if a male came forth, the infant which she herself carried would be a son, and the reign of Augustus would thus be continued.

"The Egyptians and Indians relied upon the state of the heavens, and upon the nature of the constellations at the moment of fecundation.

"The Greeks, and other people of the ancient world, have invoked the phases of the moon.

"Founded on the dubious theory that the male embryo is developed earlier than the female, Aristotle, Hippocrates, and many other ancient authors believed, that the mother feels movements earlier when she carries a boy than when she carries a girl."

Velpeau then alludes to the external appearance and deportment of a mother pregnant with a male, and contrasts them with another carrying a female.

The desire to foretell the sex of the child has given rise to many important physiological questions. This point of scientific interest, although debated in the days of Hippocrates, still fixes the attention of many naturalists.

I shall now conclude the above "column for the curious," as to the prediction of the sex by referring those who would inquire into the history of the opinions of the ancients on this subject, to the works of Fournier, Dionis, Millot, Legallois, Mauriceau, etc.

In 1859 Dr Frankenhauser[1] (then assistant to Professor Martin of Berlin) published the result of a series of observations he had made in connexion with obstetric auscultation, stating that the *fœtal heart of a male child beats slower than that of a female.* That if the pulsations are under 144, you may predict a male; again, if averaging that and higher, a female. His paper, elaborately worked out, and his deductions logical, seemed to carry conviction.

When acting in the Edinburgh Maternity Hospital as House Physician in 1868, along with Dr Munro (who made a large number of interesting observations on this subject), I kept a record of 61 cases and their results. These statistics were kindly brought before this Society in May 1870 by Dr Charles Bell (the President). The cases were divided into three Tables. Table 1[2] consisting of 23 males, all correct as predicted. Table 2 consisting of 17 females, also correct. And Table 3 containing 21 exceptions (that is, the results turned out contrary to expectation). In short, of the 61, 40, or nearly two-thirds, were correct, and 21 incorrect. I may

---

[1] Monatsschrift für Geburtskunde, 1859.

[2] See Table I. (1, 2, 3).

TABLE I.

TABLE 1. Males.		TABLE 2. Females.		TABLE 3. Exceptions.		TABLE 4. Males.		Females. TABLE 5.		TABLE 6. Exceptions.	
1. Mrs Daly,	120 (twin)	7. Mrs H.,	150	5. M. M.,	135	62. M. H.,	126	74. A. R.,	145	61. F. H.,	120
2. F. H.,	138	10. J. M.,	142	8. A. B.,	138	63. M. Z.,	124	80. M. L.,	156	64. C. S.,	130
4. Mrs S.,	130	19. E. M.,	144–160=152	9. M. H.,	118	78. A. P.,	136	81. M. D.,	150	65. M. M.,	124
6. Mrs M.,	130	31. J. M.,	140	11. C. M.,	136	88. P. H.,	124	82. E. E.,	160	66. M. L.,	150
12. Mrs S.,	138	32. B. K.,	150	13. M. B.,	130	92. E. W.,	128	83. B. K.,	145 (twin)	67. E. F.,	132
15. E. A.,	130	35. A. S.,	140	14. J. D.,	128	95. A. J.,	138	89. A. K.,	160	69. T. S.,	144
18. C. A.,	132	36. D.,	144	16. A. D.,	140	104. F. B.,	131	94. D. R.,	160	71. A. L.,	135
21. J. H.,	140	1. D.,	154 (twin)	17. E. G.,	120	68. M. S.,	140	86. B. R.,	146	72. E. P.,	144
22. Mrs A.,	132	37. S.,	140	20. J. M.,	132	84. S. A. W.,	140	99. B. G.,	150	73. W. R.,	118
24. Mrs L.,	134	38. D.,	152	23. J. D.,	136			103. E. S.,	144	75. E. H.,	124
25. Mrs L.,	136–144=140	30. F. H.,	140	27. E. J.,	120–128=124			105. F. B.,	150	77. A. C.,	120
26. S.,	130–136=133	46. D.,	140–146=143	30. E. M.,	132			87. J. E.,	140	79. M. K.,	132
28. G.,	112–120=116	56. G.,	160	33. A. D.,	122			96. C. D.,	140	85. E. E.,	148
29. E. S.,	120	47. S.,	144	34. A. W.,	118					91. M. R.,	164
39. B. M.,	138	49. F.,	140–142=141	42. J. S.,	155					90. A. S.,	128
41. M.,	125	59. R.,	144	43. K.,	120					93. M. Z.,	152
44. J. M.,	140–142	40. R. D.,	140	50. F.,	150					97. F. K.,	156
45. S.,	140			52. A. S.,	136					100. H. B.,	148
57. A. H.,	120			53. M.,	141					101. P. K.,	148
60. J.,	116–124=120			54. C.,	116					102. M. M.,	130
48. C.,	130–144=137			58. A.,	150					106. A. R.,	138
51. E. W.,	140									107. F. S.,	145 (126)
55. M.,	122									108. E. H.,	152
										109. M. R.,	170
										98. B. P.,	140
										110. W. P.,	140
										76. H. K.,	140
										70. T. V.,	140
										111. F. M.,	146
Total,	23	Total,	17	Total,	21	Total,	9	Total,	13	Total,	29

mention, that in the cases of several, where the beats averaged 140, their character as to distinctness and regularity was taken into consideration.

Hence I felt that, to a certain extent, I could corroborate Frankenhauser's theory—that although not invariable, there was a decided ratio between the sex of the fœtus and the number of pulsations per minute.

On proceeding to Berlin in the spring of 1872, I was enabled, through the kindness and courtesy of Professor Martin and his assistants Drs Löchlein, Martin, and Ruge, to prosecute this research further in the Royal Maternity Hospital there. The cases, 51 in number, are also divided into three Tables. Tables 4 and 5[1] (male and female) with four of the cases at 140, were correct = 22. But Table 6 consisted of no fewer than 29 exceptions, thus leaving the correct predictions in a minority of 7.

On adding the six Tables together, I found the comparatively large majority of the first series had fallen to but 13 in the total of the 112 cases. I may add, that by far the greater number of the observations of the second series were made before labour, when the patient was at perfect rest, and in the recumbent posture; some of them, indeed, both before and after labour. In case 107, the pulse curiously fell to 126 (from 145) during labour.

I must confess to having felt considerably disappointed with these results. It seemed so simple to predict the sex by merely counting the pulsations, and taking the mean average.

Having several times remarked that fœtuses apparently above the average weight had a lower pulse ratio—for instance, in a case where the beats were counted at 132, and distinct, a male was predicted, but at birth it proved to be a *large* female—it occurred to me,—*Might there not be a relation between the weight of the child and the pulsations of the fœtal heart?* Accordingly, having obtained, from the Hospital Case-books here and in Berlin the weights of all those recorded, I have been enabled to arrive at a conclusion, although the number of cases is, I regret, small.

Taking the average weight of the male child at birth at 7·28 lbs. or 7 lb. 4½ oz. (= 3300 grammes), and that of the female at 6·8 lbs. or 6 lb. 13 oz. (= 3080 grammes) (the mean average of the cases tabulated), let us glance at one or two.

Take Case 11:[2] the fœtal pulsations were 136 per minute, or one per cent. less than the average (— 138); accordingly, a male was predicted, but at birth, it proved to be a large female, weighing 7·69 lb. or + 13 (13 per cent.) in excess of the average (6·8 lb.), equivalent to about one-eighth.

Again, take Case 69,[3] where the pulsations averaged 144, or + 4, in excess, and a female was diagnosed, but it turned out to be a male. It however weighed only 6 lb. 13 oz. or — 16, in defect of the average (7·28 lb.). And so on.

[1] See Table I. (4, 5, 6). [2] See Table II. [3] See Table III.

TABLE II.

No.	Names.	Sex.	Fœtal Heart.				Maternal Pulse.		Weight of Child.					Weight of Placenta.			Ratio of the Fœtal Pulse to the Weight of Child.			
			Number of Pulsations.		Percentage Variation from Average.		Number of Pulsations.	Percentage Variation from Aver.	Pounds.		Grammes.	Percentage Variation from Average.		Pounds.		Grammes.	Pulsations per Pound.		Percentage Variation from Average.	
			M.	F.	M.	F.			M.	F.		M.	F.	M.	F.		M.	F.	M.	F.
	M. D.	M.	120	...	—13	...	...	...	6·50	...	...	—11	...	1·125	...	...	18·5	...	— 3	...
	...	F.	...	154	...	+11	...	...	...	5·75	...	...	—15	...	1.06	...	...	26·8	...	+3
2	M. F.	M.	138	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	A. R.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	M. S.	M.	126–134	...	— 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	M. M.	F.	...	130–140	...	— 2	...	...	...	7·50	...	...	+10	...	...	...	...	18·0	...	—11
6	M. Mc.	M.	130	...	— 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	M. H.	F.	...	150	...	+ 9	...	...	...	...	...	...	...	...	...	..	..	...	...	...
8	A. B.	F.	...	138	...	0	...	...	...	6·00	...	...	—12	...	0·94	...	...	23·0	...	+1
9	M. H.	F.	...	116–120	...	—14	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	J. M.	F.	...	140–144	...	+ 3	...	...	...	7·75	...	...	+14	...	1·52	...	...	18 3	...	—
11	C. M.	F.	...	136	...	— 1	...	...	...	7·69	...	...	+18	...	1·5	...	...	17·7	...	—1
12	M. S.	M.	138	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	M. B.	F.	...	130	...	— 6	...	...	...	6·40	...	...	— 6	...	1·31	...	...	20·3	...	+
14	J. D.	F.	...	126–130	...	— 7	...	...	...	7·00	...	...	+ 8	...	1·33	...	...	18·3	...	—
15	E. A.	M.	130	...	— 6	...	...	...	8·25	...	...	+13	...	1·5	...	...	15·8	...	—17	...
16	A. D.	F.	...	140	...	+ 1	...	...	...	5·69	...	...	—16	...	1·19	...	...	24·6	...	+2
17	C. G.	F.	...	120	...	—13	...	...	...	6·25	...	...	— 8	...	0·81	...	...	18·4	...	—
18	C A.	M.	132	...	— 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	I. M.	F.	...	144–160	...	+10	...	...	...	6·81	...	...	...	...	1·06	...	...	22·3	...	+1
20	J. M.	F.	...	132	...	— 4	...	...	...	7·88	...	...	+16	...	1·5	...	...	16·8	...	—17
21	J. H.	M.	140	...	+ 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	M. A.	M.	132	...	— 4	...	...	...	7·69	...	...	+ 6	...	1·13	...	...	17·1	...	—10	...
23	J. D.	F.	...	136	...	— 1	...	...	...	6·94	...	...	+ 2	...	1·25	...	...	19·6	...	—
24	M L.	M.	134	...	— 3	...	...	...	8·94	...	...	+23	...	1·25	...	...	15	...	—21	...
25	M. L.	M.	136–144	...	+ 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	M. S.	M.	130–136	...	— 3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	E. J.	F.	...	120–128	...	—10	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	E. G.	M.	112–120	...	—16	...	...	...	6·56	...	...	—10	...	1·27	...	...	17·7	...	— 7	...
29	E. S.	M.	120	...	—13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	I. M.	F.	...	132	...	— 4	...	...	...	6·48	...	...	— 5	...	1·13	...	...	20·5	...	+ 2
31	J. M.	F.	...	140	...	+ 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	B. K,	F.	...	150	...	+ 9	...	...	...	7·25	...	...	+ 7	...	1·31	...	...	20·7	...	+ 3
33	A. D.	F.	...	120–124	...	—11	...	...	...	5	...	...	—26	...	1·25	...	...	24·4	...	+21
34	A. W.	F.	...	118	...	—14	...	...	...	6·06	...	...	—11	...	1·5	...	...	19·5	...	+ 4
35	A. S.	F.	...	140	...	+ 1	...	...	...	8·25	...	...	+21	...	1 5	...	...	17·0	...	—1
36	M. D.	F.	...	144	...	+ 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	M. S.	F.	...	140	...	+ 1	...	...	...	6·56	...	...	— 4	...	1·06	...	...	21·3	..	+ 5
38	M. D.	F.	...	152	...	+10	...	...	...	8·14	...	...	+20	...	1·25	...	...	18·7	...	—
39	B. M.	M.	138	...	0	...	...	...	6·68	...	...	— 8	...	1·14	...	...	20·7	...	+ 9	...
40	R. D.	F.	..	140	...	+ 1	...	...	...	8·31	...	...	+22	...	1·5	...	...	16·	...	—1
41	M. M.	M.	125	...	— 9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42	J. S.	M.	150–160	...	+12	...	...	...	6·13	...	...	—16	...	1·07	...	...	25·3	...	+33	...
43	M. V.	F.	...	120	...	—13	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	J. M.	M.	140–142	...	+ 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45	M. S.	M.	140	...	+ 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46	M. D.	F.	...	140–146	...	+ 3	...	...	...	7·50	...	...	+10	...	1·5	...	...	19·1	...	— 6
47	M. S.	F.	...	144	...	+ 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48	M. C.	M.	130–144	...	— 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
49	M. F.	F.	...	140–142	...	+ 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50	M. F.	M.	150	...	+ 9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
51	E. W.	M.	140	...	+ 1	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...
52	A. S.	F.	...	136	...	— 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
53	M. M.	M.	141	...	+ 2	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
54	M. C.	F.	...	112–120	...	—16	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	M. M.	M.	122	...	—10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
56	M. G.	F.	...	160	...	+16	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57	A. H.	M.	120	...	—13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58	M. A.	M.	150	...	+ 9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
59	M. R.	F.	...	144	...	+ 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60	M. J.	M.	116–124	...	—13	...	...	...	9·5	...	...	+31	...	1·06	...	...	12·6	..	—34	...
61	F. H.	F.	...	120	...	—13	...	...	...	7·05	3200	...	+ 4	...	1·32	600	...	17·	...	—16
62	M. H.	M.	126	...	— 9	...	...	...	7·05	...	3200	— 3	...	1·0	...	190	17·9	...	— 6	...
63	M. Z.	M.	124	...	—10	...	88	+ 7	8·46	...	3840	+16	...	1·3	...	590	14·6	...	—23	...
64	C. S.	F.	...	130	...	— 6	96	+16	...	7·72	3500	...	+14	...	1·3	590	...	16·	...	—17
65	M. M.	F.	...	124	...	—10	60	—27	...	6·30	2860	...	— 7	...	0·79	360	...	19·7	...	— 2

TABLE III.

No.	Name.	Sex.	Fœtal Heart.				Maternal Pulse.		Weight of Child.					Weight of Placenta.			Ratio of the Fœta Pulse to the Weight of Child.			
			Number of Pulsations.		Percentage Variation from Average.		Number of Pulsations.	Percentage Variation from Aver.	Pounds.		Grammes.	Percentage Variation from Average		Pounds.		Grammes.	Pulsations per Pound.		Percentage Variation from Average	
			M.	F.	M.	F.			M.	F.		M.	F.	M.	F.		M.	F.	M.	F
66	M. L.	M.	150	...	+ 9	...	80	— 8	7·96	...	3610	+ 9	....	1·39	...	630	18·8	...	— 1	...
67	E. F.	F.	...	132	...	— 4	84	+ 2	...	6·46	2930	...	— 5	...	1·12	510	...	20·6	...	+ 2
68	M. S.	M.	140	...	+ 2	...	84	+ 2	6·99	...	3170	— 4	...	1·17	...	530	20	...	+ 5	...
69	T. S.	M	144	...	+ 4	...	70	—15	6·13	...	2730	—16	...	1·08	...	470	23·5	...	+24	...
70	T. V.	M.	140	...	+ 2	...	90	+ 9	6·77	...	3070	— 7	...	...	...	...	20·8	...	+ 9	...
71	A. L.	F.	...	134–136	...	— 2	78	— 5	...	6·77	3070	...	— 0	...	1·21	550	...	20·0	...	— 1
72	E. P.	M.	144	...	+ 4	...	88	+ 7	7·90	...	3590	+ 9	...	1·37	...	620	18·2	...	— 4	...
73	W. R.	F.	...	118	...	—14	80	— 8	...	7·94	3610	...	+17	...	1·61	730	...	14·9	...	—27
74	A. R.	F.	...	140–150	...	+ 5	80	— 8	...	7·01	3180	...	+ 3	...	·81	370	...	20·7	...	+ 2
75	E. H.	F.	...	124	...	—10	84	+ 2	...	7·83	3550	...	+15	...	1·79	810	...	15·8	...	—22
76	H. K.	M.	140	...	+ 2	...	82	0	7·67	...	3480	+ 5	...	1·32	...	600	18·3	...	— 4	...
77	A. C.	F.	...	120	...	—18	78	— 5	...	8·31	3770	...	+22	...	1·61	730	...	14·4	...	—29
78	A. P.	M.	136	...	— 2	...	92	+12	7·90	...	3580	+ 9	...	...	...	...	17·2	...	— 9	...
79	M. K.	F.	...	132	...	— 4	78	— 5	...	7·50	3400	...	+10	...	1·21	550	...	17·6	...	—18
80	M. L.	F.	...	156	...	+13	104	+26	...	6·55	2970	...	— 4	...	1·12	510	...	23 8	...	+18
81	M. D.	F.	...	150	...	+ 9	96	+16	...	6·77	3070	...	— 0	...	1·41	640	...	22·2	...	+10
82	E. E.	F.	...	160	...	+16	80	— 8	...	6·26	2840	...	— 8	...	1·1	500	...	25·6	...	+27
83	B. K.	F.	...	140–152	...	+ 6	98	+19	...	4·87	2210	...	—28	...	·51	230	...	30·0	...	+49
	...	F.	...	140	...	+ 2			...	4·63	2010	...	—32	...	...	...	...	30·2	...	+49
84	S. A. W.	M.	140	...	+ 2	...	96	+16	8·09	...	3670	+11	...	2	...	900	17·3	...	— 9	...
85	E. E.	M.	148	...	+ 7	...	68	—17	7·65	...	3470	+ 5	...	...	...	...	19·8	...	+ 2	...
86	B. R.	F.	...	146	...	+ 6	78	— 5	...	6·70	3040	...	— 1	...	1·06	480	...	21·8	...	+ 8
87	J. E.	M.	140	...	+ 2	...	76	— 8	7·12	...	3230	— 2	...	1·23	...	560	19·7	...	+ 4	...
88	P. H.	M.	124	...	—10	...	82	0	7·06	...	3200	— 3	...	...	...	...	17·6	...	— 7	...
89	A. K.	M.	...	160	...	+16	...	...	...	7·06	3200	...	+ 4	...	·97	440	...	22·7	...	+12
90	A. S.	F.	...	128	...	— 7	...	...	...	7·28	3300	...	+ 7	...	1·41	640	...	17·6	...	—13
91	M. R.	M.	164	...	+19	...	90	+ 9	7·30	...	3310	+ 0	...	1·28	...	580	22·5	...	+18	...
92	E. W.	M.	128	...	...	— 7	68	—16	7·72	...	3500	+ 6	...	1·36	...	620	16·6	...	—13	...
93	M. Z.	M.	152	...	+10	...	80	— 8	8·47	...	3840	+16	...	1·8	...	590	18	...	— 5	...
94	D. R.	F.	...	160	...	+16	76	— 8	...	5·64	2560	...	—17	...	1·36	620	...	28·2	...	+40
95	A. J.	M.	138	...	0	...	...	...	6·77	...	3070	— 7	...	1·19	...	540	20·4	...	+ 8	...
96	C. D.	F.	...	140	...	+ 2	84	+ 2	...	6·68	3030	...	— 2	...	1·01	460	...	20·9	...	+ 3
97	F. K.	M.	156	...	+13	...	96	+16	7·41	...	3360	+ 2	...	...	...	...	21	...	+11	...
98	B. P.	M.	140	...	+ 2	...	82	0	6·79	...	3080	— 7	...	1·06	...	480	20·6	...	+ 8	...
99	B. G.	F.	...	150	...	+ 9	92	+12	...	6·68	3030	— 8	— 2	...	1·28	580	...	22·4	...	+11
100	H. B.	M.	148	...	+ 7	...	68	—16	6·68	...	3030	...	...	·99	...	450	22·2	...	+17	...
101	P. K.	M.	148	...	+ 7	...	84	+ 2	7·06	...	3200	— 3	...	1·08	...	470	21·	...	+11	...
102	M. M.	F.	...	130	...	— 6	98	+19	...	8·49	3850	...	+25	...	1·54	700	...	15·3	...	—25
103	E. S.	F.	...	144	...	+ 4	62	—25	...	6·57	2980	...	— 3	...	1·26	570	...	21·9	...	+ 8
104	F. B.	M.	126–136	...	— 5	...	75	— 9	8·36	...	3790	+15	...	1·37	...	620	15·6	...	—18	...
105	F. B.	F.	...	150	...	+ 9	80	— 8	...	6·75	3260	...	— 1	...	·99	450	...	22·2	...	+10
106	A. R.	F.	...	138	...	0	84	+ 2	...	6·62	3000	...	— 8	...	2·16	980	...	20·8	...	+ 3
107	F. S.	M.	140–150	...	+5	...	76	— 8	4·87	...	2280	—33	...	·95	...	430	30	...	+58	...
108	E. H.	M.	152	...	+10	...	84	+ 2	7·34	...	3330	+ 1	...	1·17	...	530	20·7	...	+ 9	...
109	M. R.	M.	170	...	+23	...	76	—8	5·84	...	2650	—20	...	1·17	...	530	29·1	...	+53	...
110	W. P.	F.	...	140	...	+ 2	68	—16	...	5·78	2620	...	—15	...	...	...	...	24·2	...	+20
111	F. M.	M.	146	...	+6	...	100	+24	8·90	...	1750	—46	...	...	·64	290	37·4	...	+96	...
Total Sum			7326	8185					245·51	321·23							681·0	968·5		
Cor. Aver...			137·6						7·28	6·80							19·0	20·2		

Weight of Child.

Case 11. Fœtal Heart = 136. Female. 7·69 lb. or + 13 (that is, in excess of the average).
Case 20. F. H. = 132. Female. 7·88 lb. or + 16.
Case 61. F. H. = 120. Female. 7·05 lb. (3200 grs.) or + 4.
Case 69. F. H. = 144. Male. 6·13 lb. (2730 grs.) or — 16.
Case 90. F. H. = 128. Female. 7·28 lb. (3300 grs.) or + 7.
Case 100. F. H. = 148. Male. 6·68 lb. (3030 grs.) or — 8.
Case 75. F. H. = 124. Female. 7·83 lb. (3550 grs.) or + 15.
Case 77. F. H. = 120. Female. 8·31 lb. (3770 grs.) or + 22.

TABLE IV.

Showing the relation between the number of Pulsations of the Fœtal Heart and the Weight of the Child.

The Beats in Excess of the Average Number.

Case.	Percentage Variation from the Average Fœtal Heart.	Percentage Variation from Average Weight.	
		Males.	Females.
1.	+ 11	...	— 15
10.	+ 3	...	+ 14
16.	+ 1	...	— 16
19.	+ 10	+ 0	...
32.	+ 9	...	+ 7
35.	+ 1	...	+ 21
37.	+ 1	...	— 4
38.	+ 10	...	+ 20
40.	+ 1	...	+ 22
42.	+ 12	— 16	...
46.	+ 3	...	+ 10
66.	+ 9	+ 9	...
68.	+ 2	— 4	...
69.	+ 4	— 16	...
70.	+ 2	— 7	...
72.	+ 4	+ 9	...
74.	+ 5	...	+ 3
76.	+ 2	+ 5	...
80.	+ 13	...	— 4
81.	+ 9	...	— 0
82.	+ 16	...	— 8
83.	+ 6	...	— 28
	+ 2	...	— 32
84.	+ 2	+ 11	...
85.	+ 7	+ 5	...
86.	+ 6	...	— 1
87.	+ 2	— 2	...
89.	+ 16	...	+ 4
91.	+ 19	+ 0	...
93.	+ 10	+ 16	...
94.	+ 16	...	— 17
96.	+ 2	— 2	...
97.	+ 13	+ 2	...
98.	+ 2	— 7	...
99.	+ 9	...	— 2
100.	+ 7	— 8	...
101.	+ 7	— 3	...
103.	+ 4	...	— 3
105.	+ 9	...	— 1
107.	+ 5	— 33	...
108.	+ 10	+ 1	...
109.	+ 23	...	— 20
110.	+ 2	...	— 15
111.	+ 6	— 46	...

Of 44 cases, each of which has a pulse above the average, 26 are below the average weight, and 18 above it.

The following cases show that the average weight, the sex, and the pulsations agreed:—

			Weight of Child.
Case 63.	F. H. = 124.	Male.	8·46 lb. (3840 grs.) or + 16.
Case 78.	F. H. = 136.	Male.	7·90 lb. (3580 grs.) or + 9.
Case 92.	F. H. = 128.	Male.	7·72 lb. (3500 grs.) or + 6.
Case 104.	F. H. = 131.	Male.	8·36 lb. (3790 grs.) or + 15.
Case 15.	F. H. = 130.	Male.	8·25 lb. or + 13.
Case 24.	F. H. = 134.	Male.	8·94 lb. or + 23.

I placed my list of cases in the hands of Mr Scott Lang (assistant to Professor Tait), who kindly worked out for me a series of calculations, from which I now offer you the following deductions and conclusions.

The averages were corrected by leaving out all cases which deviated by 20 per cent. on either side. The percentage deviation of every case from these corrected averages is noted. + = in excess of the average; — = in defect.

As I have stated, we take 138 per minute as the average pulsations of the fœtal heart; 7·28 lb. as the average weight of a male child, and 6·8 lb. that of a female at birth.

(1.) Of 44 cases[1] where the fœtal pulsations were *above* the average, 26 were *below* the average weight. Of 33 cases[2] in which the fœtal pulsations were below the average, 21, or nearly two-thirds, were above the average weight. In other words, of the total 77 cases, 47, or fully three-fifths, show that there is a certain ratio between the weight and the pulsations, with 30 exceptions.

Thus, from the results of the above tables, we may conclude that when the fœtal pulse is below the average, the fœtus is above the average weight; and, *vice versa*, when the pulsations are above the average, the fœtus is below the average weight (calculated according to the sex). I may add that four cases of average pulse were deleted.

(2.) The weight of the female is about 6 ounces, or 7 per cent., less than that of the male.

(3.) The ratio between the weight of the child and the fœtal pulsations is about 19 beats per lb. for the male and 20·2 beats for the female. 'In other words, "*For the same pulse, a male at birth should be heavier than a female in the proportion of* 20·2 *to* 19; or, *vice versa*, if a male and female be of the same weight, the latter should have a higher pulse.

Supposing a child is born whose pulse was 140 per minute, its weight, if a male, should be $\frac{140}{19}$, or 7·37 lb., and only $\frac{140}{20{\cdot}2}$, or 6·93 lb. if a female.

In Case 11 (a female + 13 in excess of the average weight), if it had been a child of normal weight, there should have been 20·2 beats for every lb., but there were only 17·7, or — 13, in defect of the average.[3]

---

[1] See Table IV. [2] See Table V. [3] See Table II.

TABLE V.

The Pulsations in Defect of the Average Number.

Case.	Percentage Variation from the Average Pulse.	Percentage Variation from Average Weight.	
		Males.	Females.
1.	— 13	— 11	...
5.	— 2	...	+ 10
11.	— 1	...	+ 13
13.	— 6	...	— 6
14.	— 7	...	+ 3
15.	— 6	+ 13	...
17.	— 13	...	— 8
20.	— 4	...	+ 16
22.	— 4	+ 6	...
23.	— 1	...	+ 2
24.	— 3	+ 23	...
28.	— 16	— 10	...
30.	— 4	...	— 5
33.	— 11	...	— 26
34.	— 14	...	— 11
60.	— 13	+ 31	...
61.	— 13	...	+ 4
62.	— 9	— 3	...
63.	— 10	+ 16	...
64.	— 6	...	+ 14
65.	— 10	...	— 7
67.	— 4	...	— 5
71.	— 2	...	— 0
73.	— 14	...	+ 17
75.	— 10	...	+ 15
77.	— 13	...	+ 22
78.	— 2	+ 9	...
79.	— 4	...	+ 10
88.	— 10	— 3	...
90.	— 7	...	+ 7
92.	— 7	...	+ 6
102.	— 6	...	+ 25
104.	— 5	...	+ 15

Of 33 cases, each of which is below the average pulse, 21 are above the average weight, and 12 below it.

In case 20, the beats were only 16·8 per lb., or 17 per cent. less than the average.

This serves to explain the column headed "Percentage variation from average weight."[1]

+ 0, or − 0, means that the number is very near the average, but is slightly in excess in the one and in defect in the other.

Zepulder of Vienna agreed with Frankenhauser, giving as the average for the female 138–144, and for the male 120–132.

Tanner's observations did not corroborate Frankenhauser, the results being negative. However, his cases were limited, as he briefly records the results of only six examinations.

---

[1] See Tables II. and III.

Dr F. C. Wilson says:—"The rate varies from 110–170, and seems to bear a very remarkable relation to the sex of the child."

Dr Hutton, of Brooklyn, states, that when the beats are above 144 it will be a female, and between 124 and 144, a male.

Steinbach also made investigations regarding this subject.

Lastly—Relation of the Maternal to the Fœtal Pulse.—Kergaradec distinctly stated that the one did not influence the other. I believe it has been the general opinion that there is no relation between them; but I have not been able to find any data or statistics on this subject. Accordingly, I took the maternal pulses of the second series, either immediately before or after auscultating the fœtal heart.

For instance, take Case 64, fœtal heart = 130 (8 below the average); maternal pulse = 96, or considerably above the average for an adult.

Case 69. F. H. (fœtal heart) = 144; M. P. (maternal pulse) = 70
Case 75. F. H. = 124; M. P. = 84
Case 82. F. H. = 160; M. P. = 76
Case 94. F. H. = 160; M. P. = 76
Case 109. F. H. = 170; M. P. = 76
Case 78. F. H. = 136; M. P. = 92
Case 84. F. H. = 140; M. P. = 96
Case 102. F. H. = 130; M. P. = 98

Showing that when the mother's pulse is high, the fœtal pulsations are of average rapidity, and *vice versa.*

The following four cases would appear to indicate a ratio, but if such were the case the rule ought to be invariable:—

Case 80. F. H. = 164; M. P. = 104
Case 97. F. H. = 156; M. P. = 99
Case 91. F. H. = 164; M. P. = 90
Case 92. F. H. = 150; M. P. = 92

I have noted several cases when, on taking the maternal pulse, it was at 70, and the fœtal pulse about 135, and on again counting the former, after the external measurements of the pelvis had been taken (*i.e.*, measuring with the aid of a pleximeter the external diameters), it had risen 20 beats, while the fœtal pulsations remained unaltered. It is thus evident that there is no relation between them.

Conclusions.

1. That the indications resulting from auscultation of the fœtal heart are of a certain value in aiding us to diagnose the sex of the fœtus *in utero*, but cannot solely be relied upon.
2. That there seems to be a relation (or ratio) between the weight and the pulsations of the fœtus *in utero.*
3. That for the weight per pound, the pulsations are slower in the male than in the female.
4. That there is no relation between the fœtal and maternal pulse.

There is yet, I feel sure, much important information to be obtained on this subject. Such investigations can only be pursued conveniently and satisfactorily in the wards of a large maternity hospital.

I trust that I have indicated, although I fear but imperfectly, that results of scientific interest and practical value may be derived from observations in connexion with the FŒTAL HEART.

ARTICLE V.—*Personal Experience of Death from Aneurism and Disease of the Heart in the Service: A Clinical Note.* By Surgeon-Major WILLIAM CURRAN, A.M.D.

"Pluris est oculatus testis unus quam auriti decem."—PLAUTUS.

IN one of those frequent and suggestive letters which Dr Farr addresses annually to his chief, the Registrar-General, there occurs a paragraph on which I have often pondered with pain, and which deserves, I think, more attention at the hands of the profession than it is likely to receive in the pages of a blue-book. In this belief I will summarize it here, and base upon that summary the results of my own personal experience of the mortality that is caused by aneurism and diseases of the heart in that branch of H.M. service with which I am connected. These are, unfortunately, grave enough, but they have, in my humble opinion, been somewhat exaggerated, and one of the objects of this little paper is to show that such is the case, and that the present régime may contrast favourably with most of its predecessors in respect of immunity from and decrease of cardiac disease in the army. My proof of this assumption—for such it really is—must depend on personal rather than on positive testimony, for I have no statistics to fall back upon. The general facts are not, however, disputed, and I wish to confine myself in this communication entirely to the phase of the question with which I have been personally most conversant. In this way the contribution may gain in authority what it loses in point of general interest; and if, as a pious writer[1] has said, the narrative of even the most insignificant of men would be instructive could he be taught to recount with truth and perspicuity what he has seen himself, I may fairly hope that this little record of mine may not be found altogether devoid of profit. In this spirit is it offered, and it is in this light I would wish it to be judged; and having indulged so far in personality by way of preface, I will now proceed at once *in medias res.* Commenting, then, on the precision in diagnosis acquired of late through the advances of pathology, and after observing that "heart diseases are now recognised . . . . which some years ago would have been overlooked, or would have been confounded with other maladies," Dr Farr[1] adds: "It is the duty of physicians, in recording facts respecting disease and death, to employ the same care as astronomers and meteorologists bestow on the observation of physical phenomena, and if that is done the observations will admit of the same kind of generalizations;" and this little essay has no higher aim than that of placing before my brethren a plain unvarnished narrative of the casualties from these complications that have come under my own notice since I entered the public service.

---

[1] George Spencer, better known, perhaps, as the Hon. and Rev. Father Ignatius of St Paul; see the introduction to his "Life," by the Rev. Father Pius A. Sp. Sancto. A very different personage, Thomas Carlyle, has expressed the same sentiments in terser language, as follows:—"The stupidest man. . . . . may fairly claim some hearing from us; he too . . . . has seen something, heard something, which is his own distinctly peculiar, never seen or heard by any man in this world before; let him tell us that, and, if it were possible, *nothing* more than that, he brief in proportion, shall be welcome."

Impressed with the necessity of rigidly adhering to the course indicated above, I have for some years back kept rough notes of the deaths from these diseases that occurred in my own hands, or within the sphere of my own personal inspection, and I have also availed myself of such opportunities of gleaning information about others, from friends and colleagues, as the circumstances of my position afforded. These I purpose abridging below as a contribution to the statistics and etiology of heart disease in the army. Were others of my brethren to go and do likewise, they would give more effect than many of them now do to the advice of Dr Farr, and their exertions might accumulate in time such a mass of information on these questions as would serve to elucidate the cause, and so far dispel the cloud that now hangs over this moot point of military pathology. Military medical officers possess opportunities of witnessing the rise and studying the progress of diseases which do not fall to the lot of their civilian brethren. They are absolute masters within the walls of their respective hospitals. They may watch by the cradle of an illness which they can follow to the hearse of their patients; and they exercise an authority in respect of examination after death which is quite unknown in civil life. For these reasons their deductions ought to be peculiarly valuable; and so they would be, no doubt, were they not frequently marred by the perfunctory requirements of an all-prevailing routine,[2] or vitiated by a faulty nosology: and the uncertainty which chequers their every step, and which finds no parallel in any other walk, is utterly subversive of every form of sustained industry or enthusiasm. This, in my humble opinion, is one of the reasons why army surgeons do so little for science or literature. It certainly was the cause why I allowed several years to elapse in the early part of my career without taking a single note, and any one acquainted with the vicissitudes of service in this country need not be reminded of their blighting effects. It is only within the last ten years, or since I finally determined to throw in my lot with the department, that I began to collect cases at all. This circumstance will account for their fewness, but these few may be relied upon; and any merit this little record may appear to possess is centred in the fact that it is my own sole and exclusive property—the outcome of my own unsolicited care or curiosity, and each one can appraise for himself the value of the performance as we proceed with it.

---

[1] Thirty-first Annual Report of the Registrar-General, p. 198.

[2] As illustrations in point, I will transcribe here two "Reports" of post-mortem appearances of cases with which I was myself connected, but which I had to hand over to others in consequence of being required for duty elsewhere, and leave them to speak for themselves:—CASE I. "Head not examined; chest, lungs slightly adherent; aorta granulated, close to the heart, in the ascending portions; pericardium filled with fluid; unnaturally large heart, no fatty degeneration." CASE II. "Disease, 'Regurgitant aortic valve disease;' anasarca. Heart much enlarged; right auricle dilated and thinned; mitral valve thickened; aortic valve thickened, imperfect, and coated with yellow leathery deposit. The same conditions existed in the ascending aorta." It is quite clear that such reports as these must be valueless in the absence of

That aneurism and diseases of the heart are relatively more prevalent in the army than out of it is a favourite doctrine of some pathologists; but whatever foundation there may have been for this belief in former times, there ought, I think, to be no longer any occasion for its promulgation, and in this country at least there is nothing in the condition or the surroundings of the soldier which can lend it support. The stock which, possibly for penitential or punitive purposes, was formerly used, has been discontinued for many years, and the sight of one of Marlborough's veterans, or of those strange costumes that were familiar to the early readers of Gilroy or Tristram Shandy, would now astonish even in a masquerade. Yet was the use of this enforced down to a comparatively recent period, and in a book entitled "The Martial Achievements of Great Britain and her Allies," which is dedicated to the Duke of Wellington, I find coloured illustrations which clearly prove that it was used not only at the siege of Seringapatam and the storming of St Jean d'Acre, but also throughout the Peninsula and at the battle of Waterloo. How much longer or later it held its ground I cannot say just now, but that the seasonable disuse of this unsightly and oppressive restraint has been productive of the best effects has long since been proved, and medical officers still in the department can testify of their own knowledge alone to these. One of the acutest and most observant of these, Dr Munro, C.B., mentioned to me at Kussowlee, in 1869, that when he entered the service twenty-six years previously, no surgeon dreamt of entering his wards without a stethoscope, as he was sure to have several cases of disease of the heart—phthisis or aneurism. He ascribed their causation to the unsanitary system

an adequate explanatory description, yet no such description was to be found in the old forms; and the above differs in no material respect from scores of others of like character that I have seen.

that obtained in those days, to the great amount of intemperance that prevailed, to the longer marches, and, finally, to the badly-arranged clothing and equipments. He added, by way of contrast, that he did not remember having more than one case of heart disease under his care during the thirteen years he subsequently passed in the 93d Regiment. Statements substantially similar have been made to me by other experienced officers; and many of those with whom I have conferred on the matter concur in the belief, that were the means of collecting the statistics of these diseases among the civil population, of corresponding ages, as perfect out of as they are in the army, it would be found that there would be but little difference as regards the prevalence of these diseases between the two. This, I think, is clearly shown in the various reports of the Registrar-General, as well as by the several issues of our own departmental blue-books, to each of which a short reference by way of illustration may be made here. Discussing the causes of death for 1870,—and I need scarcely say that any other year would suit my purpose just as well,—Dr Farr[1] says, "that the diseases of particular organs . . . . constitute the class of local diseases, to which in the year 205,264

---

[1] Thirty-third Annual Report of the Registrar-General, pp. 405–6. The following table from the same Report, p. 440, which was prepared for the purpose of illustrating Dr Quain's lectures on Diseases of the Heart, delivered at the Royal College of Physicians, London, is so conclusive on this point that I can afford to reproduce it here without further preface :—

Deaths and Death-rate per 1000 *from Heart Disease in the Four Quinquennial Periods between* 1851 *and* 1870.

MALES.

Quinquennial Periods.	Deaths at different Ages.					Annual Rate per 1000 Living.				
	All Ages.	0–20	20–45	45–65	65 and upwards	All Ages.	0–20	20–45	45–65	65 and upwards
1851–1855	32,617	4,416*	6,454†	11,873	9,874	·725	·177*	·553†	1·829	·507
1856–1860	39,678	3,433	8,723	14,629	12,893	·836	·156	·529	2·137	·627
1861–1865	49,738	3,942	11,128	18,662	16,006	·993	·169	·605	2·583	·738
1866–1870	57,687	4,296	13,089	21,132	19,170	1·085	·174	·709	2·757	·833

FEMALES.

Quinquennial Periods.	Deaths at different Ages.					Annual Rate per 1000 Living.				
	All Ages.	0–20	20–45	45–65	65 and upwards	All Ages.	0–20	20–45	45–65	65 and upwards
1851–1855	33,497	4,784*	6,719†	12,165	9,829	·713	·171*	·530†	1·780	·423
1856–1860	41,095	3,610	9,349	14,930	13,206	·825	·164	·516	2·061	·536
1861–1865	51,243	4,153	11,025	18,897	17,168	·970	·178	·573	2·454	·657
1866–1870	60,003	4,632	12,711	21,588	21,072	1·067	·187	·621	2·632	·758

* These figures relate to the ages 0–25, as in the abstracts for the quinquenniad 1851–55 the deaths of persons aged 15–25 were classified together.

† These figures relate to the ages 25–45 for the five years 1851–55, as it is not possible to obtain separately the deaths of persons aged 15–20 and 20–25 during that quinquenniad.

deaths were referred. The mortality was somewhat above the average by these increasing diseases. This is especially the case with heart disease, to which were referred 11,356 deaths in the year 1850, 18,758 deaths in 1860, and 25,259 in 1870. The increase was progressive and rapid in the twenty years." And he adds further on in the same page, that "Dr Quain and other physicians in extensive practice" believe that the heart has become of late "more frequently the seat of disease in consequence of the wear and tear of business, and of the increased mental activity of the age." The general results confirm these particular experiences, as it is equally certain that our departmental records show a very large amount of "circulatory" disorder in the service. Thus, I find by the two latest Reports,—the only ones at present in my possession,—that out of a strength of 47,222 infantry on home service in 1871, there were 489 admissions under this heading, of whom 52 died and 133 were invalided; and from the Report for 1872, I learn that there were 588 admissions to a strength of 44,551, of whom 48 died and 213 were invalided; and, as usual, the artillery[1] and cavalry preserve their high, perhaps I might add increasing, percentages. Again, Dr Parkes[2] lends the sanction of his high name and position to the same cry, and he gives statistics which go to show that "diseases of the circulatory system rank second as causes of death in the army at home," and that "this mortality is in excess of that of the civil male population of the same age, especially as regards aneurism!" But his able work is so accessible that I purposely refrain from quoting further from it, and, moreover, he simply restates facts which are not gainsaid. On the other hand, I find that out of a total of 36,212 rejections of recruits for 1871, 301 were for "disease of the heart," while as many as 750 were rejected for "muscular tenuity and debility;" and the corresponding rejections for 1872 numbered respectively, out of a strength of 28,390, 202 for the former, and 925 for the latter;[3] and if we put this and that together, we will, I think, find that the difference between the civil and military portions of H.M.'s subjects in respect of these complaints is more in the figures than in the facts, and that certain elements have been lost sight of in the calculation, which it behoves us now to estimate and appraise.

Of these, for reasons already given, I must take account from my own stock or standpoint alone; and I cannot help thinking that if those military medical officers and others, who insist so strongly on the greater number and prevalence of these ailments in the army, had an equal amount of experience of similar complaints in civil life, they would modify their statements, and perhaps ultimately come to acknowledge their error. Be that as it may, and speaking for myself alone in this place, I may say that, during my pupilage and otherwise, I was connected with three different London hospitals, one of which, namely, that for consumption at Brompton, is probably the largest of its kind in Europe; and meanwhile I assisted in the working of a large metropolitan parish, or in the surgery of an intelligent and busy general practitioner. Looking back now, with the aid of a memory which has rarely failed me, I can recall an amount, number, and a severity of complication of the kind here contemplated, in the six or seven years referred to above, which bear no comparison with those that have since come under my notice in the seventeen years I have passed in the service. I am well aware that this inference is open to the objection that it is only the worst and most urgent cases that are admitted into civil hospitals, whereas soldiers are often only too ready to exaggerate their petty ailments, in order to escape a hard drill or evade an unpleasant duty. On the other hand, it is confessed on all sides that there are many forms of cardiac disease that go on for years without materially endangering life, or entailing the necessity of a resort to an hospital, and any one who has enjoyed opportunities of intercourse with the middle and working classes at home must be aware of their great, often insuperable, objection to avail themselves of such charities. Indeed, were it otherwise, many of our brethren in the lower walks of our overcrowded calling would be driven to them themselves; but, thanks to that feeling of personal honour and independence which animates our countrymen, this danger does not exist, and the consequence is that numbers of this kind of cases are either overlooked altogether or included in categories which do not admit of analysis or comparison here.

---

[1] A brother officer of over twenty years' standing, and the greater part, if not the whole, of whose service has been in the artillery, assures me that such an exceptional amount of "circulatory" disease among gunners does not accord with his experience, and I have heard similar statements from other equally experienced officers.

[2] Practical Hygiene, fourth edition, pp. 574–77.

[3] See Army Medical Department Reports for 1871–72, pp. 12–40 and 51, respectively.

From that day in April 1861 on which I first landed in India, I have been curious to ascertain the effects produced on the hearts of the poorer classes of natives by the terrible and long-continued exertions imposed on them by their castes. I have been three different times into Cashmere, and I invariably made it a point of examining the hearts of the coolies who accompanied me. Last summer I stopped and examined, on the Murree and Abbottabad road, some scores of the creatures who carry wood from Kaghan to the former place. In no one instance among all these persons, and in these various situations, could I trace serious disease of the heart or larger bloodvessels to these labours—labours which, I may here add, have no parallel elsewhere out of India, and compared with which the mild half-hour's parade and easy "sentry go" of the summer season in the plains, sink into utter, nay, ridiculous, insignificance. Again, a post-mortem examination is the rule in the army, and the publicity given to sudden deaths and other similar events through the press is much greater in the service than it is in civil life. From inquiries instituted by myself on the occasion of my last residence at home, in view to an entirely different question, I learnt that necropsies are only resorted to, even in workhouses,[1] when they are called for by the coroner or other constituted authority; and the several medical men I spoke to on the subject all confessed that they were rarely required to make any such investigation. On the other hand, it may be alleged that many sudden or suspicious deaths, that are clearly due to "embolism,"[2] are set down to the account of "disease of the heart," whereby, doubtless, this class of diseases is increased; but the effects of this recently-discovered condition must be so inconsiderable as scarcely to affect the general calculation; and when we take into account the fact that not one body in every 500—I might almost make it thousands—is subjected to an examination after death in civil life, and further bear in mind that the secondary consequences of heart disease, such as anæmia, apoplexy, dropsy, etc.—"diseases which are much more obvious to the eye than the heart-sounds are to the ear"[3]—are very frequently substituted for the primary lesion, we may form some estimate of the value of the statistics that are furnished by civil registrars. Finally, "rheumatic fever and renal disease" are said to be the "two most common causes of heart disease in the civil population."[4] This may be so, for aught of certain I know to the contrary, but these complaints are notoriously unfrequent in the service even at home, and as to this country, they are simply conspicuous by their almost entire absence. Looking back through my mind's eye on the cases of Bright's disease I have seen amongst soldiers, I feel assured I could count them on my fingers, and I cannot remember more than three examples of pericarditis as a result of rheumatism, one of which was certainly pyæmic. Whether the camps of exercise some time since inaugurated at home, and more recently introduced into this country, will increase the rate of invaliding, or add to the number of casualties from these complications, I cannot say, as I have hitherto been fortunate enough to escape them; but of this I am well assured, that anything can be proved by figures, and that the light shed on these questions by statistics is often a light that leads astray.

---

[1] I happened to be once stationed in a workhouse to which the body of a horse-jockey, who was killed at a neighbouring race-course, was brought. I could easily see by the mobility of the head, and some depression in the region of the cervical spine, that he had sustained a fracture or displacement of one or more of the cervical vertebræ. I asked the master for permission to cut down upon these in order to ascertain the nature and extent of the lesion. I might as well have asked him for permission to set the house on fire. His look of surprise and disgust haunts me still. Yet he was by no means an illiberal or unfavourable specimen of his order; and I found the same rigid rule in force in every "house" with which I became subsequently acquainted.

[2] The *Lancet* of 1st August 1874 says, in a leading article on Embolism, that "numbers of cases of sudden or rapid death are still returned as due to *disease of the heart*, to apoplexy, and other causes, which should rightly be ascribed to embolism;" and this, I need scarcely say, if true, as I fully believe it to be, confirms what has been said in the text as to the untrustworthiness of statistics in civil life.

[3] Thirty-third Annual Report of the Registrar-General, p. 406.

[4] Dr Parkes, op. cit., p. 575. Dr Chevers, whose authority on this, or, indeed, upon any question bearing on the hygiene of the soldier in India, is beyond question, represents a Dr R. H. A. Hunter,—who wrote upon cardiac diseases in this country "nearly thirty years ago,"—as saying, "that in this country the connexion of cardiac disease with acute rheumatism is extremely unfrequent." See his able "Practical Treatise on the Management of Diseases of the Heart, etc.," p. 116; and in a letter with which he has favoured me he says: "Acute rheumatism is certainly rare in Lower Bengal, but I see it, say, in one, two, or three cases a year;" and after glancing at the case of a European gentleman who was the subject of an attack of acute rheumatism, whom he had recently seen, and enumerating several instances of cardiac mischief among "natives and East Indians," he cautiously adds, that "a London man, in an equal field of practice, would see much more" of this class of complaints.

Now, when we come to consider the difficulties that surround the investigation of heart disease in civil life, its insidious origin, varying progress, and doubtful termination,—difficulties which even the veteran Stokes[1] has solemnly confessed his inability to solve; and when we further consider, that the civil medical attendant is unable to verify his diagnosis, by examination after death, in ninety-seven cases out of every hundred,—what, I ask, are we to think of the statistics that are supplied to us from this quarter? What, but that they must be utterly untrustworthy, or, at best, such mere approximations to the truth as ought to count for nothing in so serious a calculation? When searching, some years ago, for another purpose, for the causes that produced death in certain parts of Ireland, I came across such entries as the following:—"Want of vital power," "Bursting a bloodvessel," "Bladder affection," "Brain disease," "Decay of nature;" and such phrases as "Consumption," "Old age," "Debility," "Injury," "Exhaustion," etc., etc., were very commonly ascribed as causes of death, in the registers to which I had access. They do those things, I believe, somewhat better in England, but even there we constantly hear of complaints of coroners who refuse to sanction examinations on account of their expense, and it is notorious that many private families leave no stone unturned to evade what they regard as a desecration of the dead and an insult and offence to the living. As to the influence of the pack and other accoutrements on the production of cardiac disease in the service, I am unable to offer any decided opinion, as my experience of their employment at home—where alone they may be said to be extensively used—has unfortunately been too limited to enable me to judge of their effects on a large scale. I may say, however, that what I did see, and what I could hear of them from others, have impressed me with the belief that their evil effects have been greatly exaggerated, and it is quite certain that they could not have contributed to any such ailments in this country, inasmuch as they are rarely worn in it. The day for sending the "foot-soldier with more than fifty pounds' weight of accoutrements . . . . upon long and fatiguing marches, tightly clothed in thick stuffs of the colours which are most calculated to absorb heat, with his chest and waist confined by heavy straps of the strongest buff, and his neck fixed in an unyielding collar of impervious leather,"[1] is long since passed away both in this country and out of it, and the railway and the steamship are now as freely availed of by the soldier, for purposes of locomotion or pleasure, as they are by his civilian brother. That the former is, however, more liable than the latter to bursts of sudden and violent exertion in a constrained position is certain, and I have long entertained a belief to the effect that, to use Dr Farr's[2] words, "the heart excited by any violent affections, by athletic efforts, by anxiety, or by extraordinary demands on its forces," is more liable to disease in these days of keen competition and increased mental activity, than it used to be in the good old days of yore. This too is the opinion, among others, of Dr Waters[3] of Liverpool, a physician of repute, who must see many cases in point in that bustling and crowded city; and I find from a return of the causes of death of 4523 seamen who were reported to the Board of Trade as having died in the British merchant service in the year 1870, that 103 of the number died of pericarditis, aneurism, heart disease, etc.[4] When we consider the kind of life sailors lead, under all weathers, we will find little difficulty in accounting for the cause of these complications, and none at all in arriving at the conclusion, that the percentage given above is altogether out of keeping with the reality. Setting aside the influences of climate—which are not shown to be, *per se*, specially injurious from this point of view—the life and liabilities of the soldier of the period, in this country at least, can admit of no comparison with those of his brethren who go down to the sea in ships. The life of the latter is one of toil, exposure, and danger; while the soldier, fanned to sleep by sable hands, in structures that may pass for a palace or a prison, lives like a Sybarite for several months of the year, and otherwise appears,

---

[1] "I cannot," says this eminent physician, "even at the risk of being charged with understating the position of physical investigation at the present day, avoid expressing my opinion, that a too great positiveness marks some of the statements in our standard works, and *that the difficulties of special diagnosis are still infinitely greater than many might be led to believe.*" And again, further on, "As the student, fresh from the schools, and proud of his supposed superiority in the refinements of diagnosis, advances into the stern realities of practice, he will be taught greater modesty and a more wholesome caution; he will find, especially in chronic disease, that important changes may exist, without corresponding physical signs—that as disease advances its original special evidences disappear, ... that the signs on which he has formed his opinion to-day may be wanting to-morrow—and lastly, that, to settle the simple question between the existence of functional and that of organic disease will occasionally baffle the powers of even the most enlightened and experienced physician." See the preface to his great work "on the Diseases of the Heart," pp. x. and xi.

---

[1] Dr Chevers, op. cit., p. 115.

[2] Op. cit., p. 406.

[3] See his "Clinical Lecture on Aortic Insufficiency" that appeared in the *Lancet* for 30th August 1873. I am told that a writer in the *Field* denies all this; but I have not seen the articles, and even if I did, I would not agree with them, for it is within my own personal knowledge that heart disease is sometimes induced under the conditions contemplated above.

[4] Op. cit., p. lxxviii.

> "To common lookers-on, like one who dreamed
> Of idleness in groves Elysian."

For these or other reasons, too numerous or too obvious to mention, no accurate comparison can be made between civil and military life or liability to these disorders. The surroundings of both are too different to admit of one, and while it is proved that the struggle for existence or the march of intellect has increased the tendency to them in the one, the introduction of a more scientific hygiene and of a looser equipment has certainly diminished it in the other. May we look forward to the day when a better selection of recruits than is now available, greater facilities of access to furlough at home and to hill sanitaria in India,[1] a larger infusion of the domestic influences generally, a finally earlier invaliding, will lead to its entire extinction in the army of the future.

(To be continued.)

ARTICLE VI.—*Case of Malignant Pustule rapidly Fatal; with a Note on the Symptoms and Pathology of the Disease in Animals and Man.* By JOSEPH BELL, F.R.S. Ed., etc.

ON 14th January 1875, I was asked by Dr Thomson of Inveresk to see A. B., æt. 38, a fine, strongly-made, wiry ploughman, of temperate habits, and who had previously had excellent health.

I found him lying on his back, quite insensible, restless, and moaning, but unable to give any answer, and apparently feeling no pain. His right arm was swollen to the shoulder, and throughout of a dusky livid colour. This colour extended to a slight extent over the front of chest. There was no pulse in any of the vessels of the limb, and his carotids pulsated but feebly. On the forearm the redness was deeper and more crimson in tint, and in the lower third of the forearm, nearly over the radial artery, there was a blackish raised bleb (containing a transparent fluid) about the size of a large garden pea; round this was a brawny hard elevation, extending to about the size of a crown piece, at the circumference of which the tissue seemed sodden, and infiltrated with pus.

---

[1] Many medical officers however believe that, to use the words of a colleague, Dr Guthrie, "cases of functional or organic diseases of the heart, large blood-vessels, or of the lungs, should not be sent to hill-stations;" and this not so much on account of the climate, as because the elevation acts injuriously on such cases by unduly stimulating the circulation, and thereby increasing a strain which is already too great.

I laid the swelling freely open by a crucial incision fairly into the substance of the brawny circumference, but little matter flowed, and no blood, though I cut quite across the line of the radial artery.

I made the diagnosis that the case was one of malignant pustule, and that the patient was dying of blood-poisoning. Stimulants were ordered, but the patient could not swallow, and died within three hours and a half after I saw him. No post-mortem examination was permitted.

From Dr Thomson I am favoured with the following history of the case:—

"On Sunday, 10th January, after working with cattle, two of which were ill, and died of what the veterinary surgeon said was splenic disease, patient came home and said to his wife that he wondered what was that on his arm, pointing to a mark, which she says was then like a small wart, with a central dark point. He scratched it when he was sitting reading. Next day he was at his work, and assisted to hang up one of the dead cattle, and on that day he made no complaint about his arm.

"On Tuesday morning he said he was afraid his arm was going to bother him. It then appeared inflamed and swollen, but he still went to his work. That day I saw him on the road, and the poisoned spot then resembled a small circular pock-mark. I advised him to go home, to bathe it with hot water, and put his arm in a sling.

"On Wednesday Dr Edmond saw him, and thought the arm looked bad; but the patient went for a walk that day, and came home quite exhausted, complaining of sickness.

"On Thursday morning Dr Edmond saw him again, when he complained of severe headache; the arm was much swollen, and the pustule was quite black. At one o'clock I was sent for, and found him insensible, and apparently dying of blood-poisoning. I then telegraphed for Mr Bell."

Anthrax of Animals.—A malarial neurosis, according to Heusinger, resulting in paralysis of the vessels of the spleen, and its inflammatory death, hence name "Milzbrand." Seems to be primarily developed in herbivorous animals only, though it can be communicated to man and all other animals. Pollender and Brauell both discovered in the blood of animals suffering from anthrax a countless mass of fine rod-like bodies resembling vibriones. These were seen many hours before the death of the animal.

Causation.—Certain physical conditions of soil, swamps, stagnant water; perhaps more than all, careless burying of animals dying of the disease; contagion through mediate agents, as pyæmia and cholera, are spread; dogs eating a dead sheep, biting a living one;

flies, such as blue-bottles, living on diseased flesh, settling on a healthy man or animal.

Progress.—Rapid, paroxsymal, with intermissions; in fatal cases lasting not over forty-eight hours, 70 per cent. being fatal.

In Man.—It is probably never spontaneous, but may be communicated from the animal in various ways.

Causation.—1. Direct inoculation by working with the animals, alive or dead; washing their wool or hair. 2. Eating flesh, milk, or butter. This is a comparatively rare method. 3. Infection by flies carrying disease from animals and inserting it by a sting. 4. Inoculation from man to man.

Position.—Comparatively rare in any covered part of body; chiefly in face, hands, forearm, or neck.

Symptoms.—*Carbuncle* or *œdema.* After a short incubation, varying from hours to days, a slight burning or itching is noticed, with a slight red speck, with a black point in centre. This becomes papular, vesicular, bursts, soon shows a dark red base. Extensive inflammatory swelling follows, surrounding the part first with a violet border, and then with an outer ring of a yellow colour, with numerous little vesicles in it. Rapid induration and œdema in the neighbourhood follows. Lymphatics often are visible, and lymphatic glands swell. In the œdematous variety the central vesicle may be absent, and a rapid greenish-yellow, translucent swelling the principal symptom. This is often seen in the eyelids.

Pathology.—The pustule is deeply embedded in the cellular tissue, and passes into an œdematous condition of skin, and even the muscles are stained here and there with extravasated blood. In my case the vitality of the whole limb was interfered with, gangrene was practically present; and the circulation was arrested. The general symptoms include pustules and carbuncles on intestinal tract, effusions into serous cavities, involvements of lymphatic glands, and often splenic engorgement.

Microscopic Appearances.—Pustule contains bacteria in the Malpighian layer of skin. They work into vesicles and spread through organism, and in time the blood is crowded by filamentous and spheroidal bacteria.

Diagnosis from Carbuncle.—In Anthrax the early superficial eschar, with a raised border, the absence of local pain, and the rapid general symptoms, ought to differentiate it; also, the very different seat, carbuncle being generally in covered parts, as back of neck.

Prognosis.—Depends entirely on the early recognition and early treatment of the disease.

Treatment.—Thorough early destruction of the anthrax pustule by free crucial incision, followed by cauterization or caustics; treating the slough by antiseptic dressings, carbolic acid, etc. Internally, a generous diet, including wine and quinine, if case is seen early enough.

Part Second.

REVIEWS.

The Gentle Treatment of Spinal Curvature. By HENRY HEATHER BIGG, Assoc. Inst. C.E. London: J. and A. Churchill: 1875. Pp. 64.

A FASCINATING title, a conceited preface, a misleading history of the subject, an absolute innocence of pathology, a few inaccurate generalizations, in a neat cover, constitute a clever advertisement of a *new* (?) or improved device of a somewhat pushing tradesman, who seems to have deluded himself and other weak brethren into the belief that he is *almost* a member of the profession. It is possible that he keeps a doctor to write his books; if so, he has not made a good selection; but from internal evidence we would rather believe that this work is entirely the production of Mr Henry Heather Bigg, Assoc. Inst. C.E.

Abstract of Results of a Study of the Genera Geomys and Thomomys, etc. By Dr ELLIOT COUES, U. S. Army. Washington: Government Printing-Office: 1875.

THIS memoir apparently forms the concluding part of a voluminous "Report of Major J. W. Powell's Exploration of the Colorado River of the West and its Tributaries," which were explored from the years 1869 to 1872 inclusive, "under the direction of the Secretary of the Smithsonian Institution." The two genera of mammals herein described are those of well-known Rodentia. Dr Coues considers them, and in our opinion correctly, as forming the types of a distinct family (*Geomyidæ*), which is most nearly related in a general way to the *Saccomyidæ*.

The monograph appears to have been carefully written. Its chief merits lie in the clear and simple enunciation of the specific and distinctive characters of each species. The best known form (*G. bursarius*, Shaw), the Canadian or pouched rat, or "gopher," is excellently described; and of the species of the genus Geomys, Dr Coues thinks that there are decidedly five of a valid nature. *Thomomys*, he is inclined to think, has varied, and is at present "in a transition stage," since, whilst Geomys has several well-marked species, Thomomys has evolved only one or two. The practical zoologist will, on the whole, find Dr Coues's memoir pleasant reading, even although he occasionally has his "fling" at some authorities on our side of the Atlantic. In his implied protests against that bugbear of zoologists, the extraordinary multiplication of specific and generic names, we heartily concur; and we only wish that authors of monographs, who have it most in their power to authoritatively issue protests against this confusing and useless practice, would more frequently and emphatically expose the evil than they are in the habit of doing. Surely, save in a few exceptional cases, it were better to leave an animal in peace, with its original and sufficiently distinctive cognomen, than to change and alter its name, according to the fancy of each individual writer, so that its original discoverer would have small chance of recognising his protégé. Dr Coues thus gives us about thirty names, each and all of which applies to *Geomys bursarius;* and the height of absurdity appears to be reached when we find one man actually naming the animal twice in succession. The scientific "talents" of some people would thus appear to lie chiefly in the invention of names; and although such persons might possibly be useful to the British Museum Curators, as serving to supply cognomens for new species, we are doubtful if their talents can be regarded as of any real or serviceable value to the science of zoology at large.

On Stricture of the Male Urethra: Its Radical Cure. By FESSENDEN N. OTIS, M.D. New York: G. P. Putnam's Sons: 1875.

A Description of the Instruments and Apparatus of the Author, with Directions for their Use in Operations on the Genito-Urinary Organs. By F. N. OTIS, M.D. New York: G. P. Putnam's Sons: 1875.

THE author's great principle is that stricture is curable, and that the reason why many or most surgeons are so discouraged by numerous failures as not to believe this, is to be found in a mistaken idea as to the normal calibre of the urethra—which is much larger than is generally believed; and so long as a single portion of a urethra cannot be dilated to its own *normal* calibre, that case is not cured, and the disease will certainly recur.

To cure strictures completely, Dr Otis has numerous instruments: a bulb-pointed meatotome for cutting the meatus; dilating urethrotomes, which cut a little, and dilate a great deal more; a set of bougies on the French scale, forty in number, increasing a millimetre in circumference at each stage; urethrametres for measuring calibre; bulbous sounds for ascertaining the presence and the number of strictures; spring tampons and endoscopic tubes for making pressure on canal, either from without or within, when bleeding takes place; and, lastly, a coil of indiarubber tubing to encircle the penis, and keep it cool by a constant flow of cold water in the tube.

The Surgeons' Pocket-Book: Being an Essay on the Best Treatment of Wounded in War; for which a Prize was Awarded by Her Majesty the Queen of Prussia and Empress of Germany in the year 1874. *Specially adapted for the Public Medical Services.* By Surgeon-Major J. H. PORTER, late 97th Regiment, Assistant Professor of Military Surgery, Army Medical School, Netley. London: Griffin and Co.: 1875.

THIS work has been already honoured by the approval of such competent judges as Billroth of Vienna, Langenbeck of Berlin, and Socin of Basle, and it seems to be thoroughly deserving of such commendation. It most ably fulfils what the author has attempted, and gives, in small compass, convenient form, and admirable arrangement, just the sort of information of practical value for a surgeon in charge of troops before the enemy. Without aiming at much originality, the author has selected the best material at his disposal. He quotes largely from classical authors, old and new. Holmes, Hamilton, Guthrie, Cooper, Erichsen, Fergusson, Esmarch, Stromeyer, Langenbeck, Gordon, and Parkes, are among the names, taken at random, to which he most frequently refers. The descriptions of operations, such as amputations and ligature of vessels, are largely derived from the works of Fergusson, Erichsen, and Joseph Bell, and Power on the Arteries.

The work is copiously and wisely illustrated by woodcuts. Many of those of hammocks, litters, slings, and splints are instructive, and save much letterpress description. Some of the *ready* methods of constructing litters with rifles and tunics, and splints of bayonets and scabbards, are very ingenious. Mr Porter has devised an ingenious sling for bed-sores, figured at p. 221.

We have to criticise the correction of press in regard to names. Vermale being made into Vermal, p. 9; Vermael, p. 174; Mac Cormac getting changed into MacCormack, p. 206; Teale losing his terminal *e*, and becoming a small duck, Teal, p. 181; Liebreich becoming Liebreick, p. 42. No one likes to have his name misspelt. In other respects every care has been taken to make this a neat and useful pocket-book in the true sense.

Nature and Treatment of the Deformities of the Human Body: Being a Course of Lectures delivered at the Meath Hospital; with numerous Notes and Additions. By LAMBERT H. ORMSBY, M.B. Dublin University. Illustrated with wood engravings. Dublin: Fannin and Co.: 1875.

THIS work may, in its first stage, as a course of twelve lectures delivered to students, have served a useful purpose, and conveyed a smattering of information on the important subjects of which it treats in an easy, graceful, and possibly even eloquent manner. But we cannot help feeling that in yielding to the entreaties of his numerous friends that he should publish his lectures, Mr Ormsby has done a foolish deed. As notes for lectures, these pages might have been useful as a groundwork or basis on which the author might have accumulated some useful experience, and eventually even founded some original and valuable work. In their present form, these pages consist of a bald, feeble compilation from the works of others, not particularly well arranged, and without a single original observation bearing on pathology or treatment. Some of the sentences, however, are original enough. We quote one of the finest passages, which, if delivered to a surgical class, must have surely demanded great confidence on the part of the lecturer, and considerable command of the facial muscles on the part of the students:—

"As all wish to be handsome and comely to a greater or less extent, and more particularly among the fairer sex, who, if ugly, try to improve their personal appearance by rouges and tints, and if endowed with a moderate amount of beauty, strive to preserve a pretty face as long as time and age will permit them—in considering the deformities of this important situation of the body, I can safely say there is no part that is more prized by the owner than the human face, which was called by the ancient writers '*the image of the soul*,' as being the seat of the principal organs of sense, and the situation where the ideas, emotions, and expressions of the mind are fully demonstrated and brought into view. The *passions*, pride, and disdain are clearly shown by the expressions of the face; modesty is seen in the cheeks, majesty and veneration in the forehead. It is the face that shows the sex, age, temperament, health, pain, or disease. We have all seen, I am sure, the anxious and pinched look of one suffering from strangulated hernia; the frightfully distorted face in hydrophobia and tetanus; the bloated and flushed face of delirium tremens; the pallid and earthy look of collapse; the golden yellow hue of jaundice; the circumscribed flush of hectic. It is also the seat of human expression, by which we mean the expression of the passions, the turns and changes of the mind, so far as they are made visible to the eyes, by our looks and gestures. Beauty, in all its grades and styles, is here displayed intimately connected with the passions, and we may say in general that all the tender and kind passions add to beauty, and all the cruel and unkind to deformity; and it is on this account that good nature may very justly be said to be the best feature in the human face.

"Mr Pope, with his poetic genius, has included the principal passions of each sort in two very appropriate lines—

"'Love, hope, and joy, fair pleasure's smiling train;
Hate, fear, and grief, the family of pain.'

The former of which naturally give an additional lustre and enliven-ing tint to beauty, as the latter are too apt to fling a gloom and cloud over it.

"The finest union of passions that can perhaps be observed in any face consists of a just mixture of *modesty*, *sensibility*, and *sweetness*, each of which, when taken singly, is very pleasing; but when they are all blended together in such a manner as either to enliven or correct each other, they give still greater attraction to a well-formed and symmetrical face."—(Pp. 26, 27.)

The grammatical accuracy, exquisite clearness of style, and metaphysical acumen, exhibited in this noble passage, will not be easily surpassed by any author on this side of the Irish Channel.

On the Issue of a Spirit Ration during the Ashantee Campaign of 1874; *to which are added two Appendices, containing Experiments to Show the Relative Effects of Rum, Meat-Extract, and Coffee during Marching, and the Use of Oatmeal Drink during Heavy Labour.* By E. A. PARKES, M.D., F.R.S., etc. London: J. and A. Churchill: 1875.

A MOST interesting, carefully-reasoned, and valuable report, first published in part as a letter to the Director-General, and sent by him to the *Lancet.* It is well worthy of publication in a separate and permanent form. On the whole, it shows that alcohol is unnecessary to work on, though, in some climates and conditions of labour, it may be valuable as a rapid, though very temporary and evanescent, stimulant.

Die Resultate der Gelenkresectionem im Kriege nach eigenen Erfahrungen. Von E. BERGMANN, Professor der Chirurgie in Dorpat, wahrend des Krieges chefarzt der Friedrichsbaracken in Karlsruhe und des Reserve-Lazareths, "Seilerbahn" in Mannheim. Mit 20 tafeln Albertotypie und einer lithographischentafel. Giessen: J. Ricker'sche Buchhandlung: 1874.

THIS is a most liberally illustrated and excellently got up account of a series of successful cases of resection in war, chiefly for gunshot wounds of the joints. Of 9 excisions of the elbow, 2 died; of 15 of the shoulder, 3 died; of 11 of the ankle, 2 died. The results in some of the cases, as shown by the photographs, are remarkably good, even when large pieces of bones had been removed. This is specially noticeable in some of the resections of the shoulder-joint. The statistics on the whole are exceedingly encouraging, showing what can be done by good surgery in patients of first-rate constitution, and under all the favourable circumstances which accompany a victorious army in a friendly and civilized country.

Virchow's Archiv, Ausgegeben am 2 Juli 1875.—"*The Influence upon the Organism of Animals of Artificial Suppression of the Perspiration of the Skin.*" By Dr N. SOKOLOFF, Assistant at the Medical Clinique of Prof. Botkin at St Petersburg.

THAT the skin is a very important organ of excretion was proved many years ago by the researches of Gluge, Majendie, Henle, and Gerlach, and more recently the same conclusion has been illustrated by the experiments of Edenhuizen (1863) and Laschkewitsch (1868). The researches of all these observers concur in showing that, if the skin of an animal be coated over with an impermeable layer of varnish, or if its body, all but the head, be enclosed in an air-tight sack, the animal soon dies, its heart and lungs becoming engorged, and its temperature falling many degrees. Although the subject is of great interest and importance, it has not of late attracted much attention, and we have therefore all the more reason to welcome the present very able paper by Dr Sokoloff.

The author has in all conducted forty-six experimental researches upon dogs and rabbits. His method of arresting the function of the skin is to smear the surface with some sticky substance, impermeable to air, such as asphalt-varnish, glue, gum-arabic, collodion, or oil. He soon found that, of all these substances, oil was the most easily applied, and one of the most efficient. In taking the temperature of the skin, the author used a spirit thermometer with a broad flat bulb which he applied to the surface, and he states that he never bound the animal, either when smearing its skin or when testing its temperature. He obtained very striking results when he smeared only a part of the body, as well as when he anointed nearly the whole surface. As examples of these results, we may cite a few of the facts detailed by him under Experiments I. and X.

Experiment I.—The subject was a small dog, weight 5600 grammes; temp. in rectum 38·9° (R.), pulse 72, respirations 26 per min. No albumen in the urine. At ten o'clock in the morning its posterior extremities were smeared over with thickened oil.

For the first three days the dog continued to be lively, and its temperature, urine, and respirations remained natural. On the fourth day the smearing of the posterior extremities was repeated. On the fifth day there was found to be a considerable quantity of albumen in the urine, and the respirations were reduced to 16–18 per minute. On the sixth day the albumen had increased, and the bowels were somewhat loose. On the seventh day the dog was dull and weak, and could scarcely stand. It ate little, the bowels were still loose, and the urine was now highly albuminous. The posterior extremities were now smeared for the third time. On the eighth day the breathing was irregular, about 14–16 per minute, and the temperature was about 38·8°. On the tenth day the temperature was reduced to 34·4°, and the respirations to 10 per minute. During this day the temperature gradually sank. The pulse became so weak that it could not be counted. Convulsions, generally of a clonic character, set in, and the urine was suppressed. At 8 P.M. the respirations were reduced to 4–6 per minute, and the temperature at 9 P.M. to 23·7°. The skin was cold, the eyes closed, and the respiration scarcely perceptible. At 10 P.M. the animal sank and died.

Experiment X. shows the effects of a more complete anointing of the body. The subject of the experiment was a gray rabbit, one year old. Its temperature at 10.45 A.M. was 39·2°. After its hair had been cut short, its temperature upon the skin was 37·8°. The sides, back, and all the extremities were smeared with oil.

At 11 A.M. the temperature in the rectum was 38·3°, but at 6 P.M. it was reduced to 37·8°. The animal was already apathetic, and there was albumen in the urine; the smearing was repeated. Next day, at 6.30 A.M., the temperature was further reduced to 36·1°, and during the day it fell rapidly, so that at 11 P.M. it was only 24°. The animal now lay upon its side, shivered throughout its whole body; there were convulsive movements in its extremities, a great deal of albumen in its urine, and there was some diarrhœa. At 12 P.M. it died.

In some of the author's experiments the temperature maintained itself to the last, and the animal died, as it were, suddenly. This, however, was exceptional. In all of his experiments, the author observes the early appearance of albumen in the urine, the apathetic condition of the animal, the occurrence of cramp or convulsive movements, the diminished frequency of the respirations; in all but a few of the cases, marked lowering of the temperature, and in many a loose condition of the fæcal evacuations.

After detailing the results of his experiments, the author proceeds to discuss the probable cause of the remarkable phenomena which they display. He disputes the conclusion of Laschkewitsch that the cause of the cooling of the body is a dilated condition of the cutaneous vessels, due to a paralysis of their vaso-motor nerves, and shows that such dilatation and paralysis do not occur. He also disputes another conclusion of the same author, namely, that all the phenomena, including the death of the animal, are due to the loss of heat, and he shows that such loss of heat is not invariable. He admits that loss of heat probably hastens the advent of death, but he holds that it does not play so important a part as Laschkewitsch attributes to it. When it does occur, he found that it cannot be prevented by rolling the animal, immediately after the application of the oil, in cotton wadding.

The author's experiments have led him to adopt the old opinion, that all the phenomena are to be explained by supposing that there is a poisoned condition of the blood, produced by the retention of the gaseous and fluid secretions of the skin. This poison, the nature of which is quite unknown, speedily affects certain of the internal organs, and especially the kidneys, in which it lights up an inflammatory condition attended with albuminuria, and death is apparently brought about in part by uræmia. The author performed a supplementary series of experiments, which seem to establish this view upon a firm basis. He took blood from the arteries of some of his smeared rabbits when they were dying, and, after depriving it of its fibrine, injected it into the veins of healthy animals. In every case it produced a temporary illness, with albuminuria, the system throwing off the poison in the course of a few days.

At the conclusion of his paper, the author notices the obvious fact, that in the human subject smearing of the surface of the skin with an oily or other impervious application does not produce the same remarkable effect as in the case of the lower animals. In this connexion he mentions the recent paper of H. Senator upon the Febrile Process (Berlin, 1873). This author seems to have adopted the conclusion of Laschkewitsch, that the chief result of smearing the skin is to lower the temperature, and, in a few cases of typhus, he has accordingly smeared the whole surface, with a view of diminishing the fever. Dr Sokoloff shows that H. Senator's experiments were poorly conducted, his results quite inconclusive, and that especially nothing is said by him regarding the state of the urine. He cannot agree with him in thinking that such applications to the skin in the case of the human subject are free from risk; and he suggests that in men as in horses the effects of such applications may only be longer in making their appearance than in the case of dogs or rabbits.

The whole subject is full of interest, as bearing in a most important manner upon the pathology of that large and important class of diseases whose causes are to be found in a chill or other accident affecting the skin, and interfering with its functions as one of the organs of excretion.

Dell' Ano Vulvare; non che di Varie Aperture e Fistole Retto-Vulvari e Retto-Vaginali, e della loro Cura. Memoria del Prof. Comm. FRANCESCO RIZZOLI. Bologna: Tipi Gamberini e Parmeggiani: 1874.

THIS is a short but interesting monograph on twelve cases in which apertures of greater or less extent, and with symptoms of varying severity, occurred, as a result either of injury or disease, between the anal and vulvar or vaginal canals. Some were treated by merely laying open the fistulous canals, others by the use of caustics, and on others plastic operations were performed—some completely, others only partially successful. Of the twelve cases, ten seem to have been improved by the treatment adopted.

Note-Book of Materia Medica, Pharmacology, and Therapeutics. By R. E. SCORESBY-JACKSON, M.D., F.R.S.E. Third Edition. Edited by ANGUS MACDONALD, A.M., M.D. Edinburgh: Maclachlan and Stewart: 1875.

Posological and Therapeutic Tables, etc. By ALEXANDER HENRY, M.B. Edinburgh: Maclachlan and Stewart: 1875.

DR SCORESBY-JACKSON'S Note-Book of Materia Medica and Therapeutics has been so long before the profession that it is quite superfluous to enlarge upon its merits. We have only to say that this—the third—edition, fully maintains the high position for fulness and accuracy which this work has already acquired, and we can conscientiously add that we know of no other single work in which the student will obtain so much information which it is necessary for him to know, so distinctly and yet concisely narrated; and in this respect we particularly commend the clear and accurate manner in which are explained the reasons for every step taken in making any chemical preparation, or in testing its purity. The therapeutical indications are also very full and precise, and are quite up to date.

As for Mr Henry's work, we cannot pay it a higher compliment than to say that it is a pocket epitome of the note-book, and deserves, after its own Lilliputian fashion, all the encomiums already paid to the work referred to. It is a complete *multum in parvo*, in strictly pocket size; it teaches how to write a prescription; gives explanations as to the various actions of medicines; very full posological tables, with therapeutic memoranda; and a separate index of diseases, with remedies suggested; and last, but not least, we have several pages of valuable information as to the symptoms and treatment of the more important forms of poisoning. We should like to know, however, who Gabius (p. 4) is; but that an Edinburgh graduate ought not to mis-spell, we might guess.

Part Third.

PERISCOPE.

MAURIAC ON SYNOVITIS OF TENDONS SYMPTOMATIC OF SYPHILIS AND GONORRHŒA. (*Concluded from page* 275.)

III.—What part is taken, in the etiology of the tendinous synovitis of the hand and knee, by each of the elements composing this complex genital affection? Is the synovitis to be attributed to the syphilis or the gonorrhœa?

The dates of the principal incidents, which I have endeavoured to fix as accurately as possible, will enable us to answer this first question.

Only nineteen days elapsed since the commencement of the genital affection, before the morbid action began to show itself in the synovial sheaths of the tendons.

Now, the time that elapses between an infecting chancre and the first appearance of the earliest secondary symptoms, is always very considerable.

In the first case, the incubation of these symptoms and of the syphilitic tendinous synovitis was forty-two days. Though I regard synovitis as one of the earliest manifestations of constitutional syphilis, I believe there is rarely an example of such great precocity.

A short interval between the genital affection and the appearance of the synovitis, when that is under twenty, twenty-five, or even thirty days, appears to me a strong objection to the synovitis being of a syphilitic nature. But if it be not syphilitic, what is its origin? Evidently gonorrhœa, or a rheumatic diathesis, or both combined. I will not refer to the rheumatic diathesis. It may have existed in our patient; but up to this time it had shown no manifestation.

The only cause which remains to explain the occurrence of the tendinous synovitis is the gonorrhœa.

A purulent discharge from the urethra no doubt existed; but of what nature?

It is well to notice that during the fifteen days or three weeks which elapsed between contamination and the appearance of the genital affection, the patient perceived no discharge, which he infallibly would have done, had the running been the result of contagion, the incubation of gonorrhœa being in fact very short.

The urethral discharge did not show itself until after the chancre, the phymosis, and the balano-posthitis; and I believe it must be attributed to the injections thrown into the glando-preputial cavity for the cure of the balano-posthitis. There did not therefore exist, according to my belief, a *purulent gonorrhœa* contracted by contagion, but a *purulent urethritis* set up by irritating injection. This urethritis got well very rapidly, on stopping the injections; is that not another proof of its non-virulent character?

It did not the less suffice to produce, though not immediately, the tendinous synovitis which we must include among the many symptoms of what is called *gonorrhœal rheumatism*, which seems to be only the result of a rheumatic or gouty predisposition excited and put in activity by a virulent or simply inflammatory irritation of the urethra. But it is not the place to enlarge on this question. Let us return to our patient. Although I am convinced that he had syphilis, I feel also certain that it played no part in the production of the tendinous synovitis.[1]

---

[1] I was not deceived in my diagnosis in connecting the balano-posthitis and phymosis of this patient with one or more infecting chancres, nor in my

These affections, as well as the pain in the shoulder, had been produced by a *non-virulent purulent discharge from the urethra*, and had come on after the irritating injections.

IV.—The hydro-phlegmonous swellings of the sheaths of the tendons, caused by irritation of the urethra or syphilis, show great variations in the severity of their symptoms.

Sometimes the element *hydropique* predominated, and they remained indolent; at another time it was the element *phlegmasique*, but the latter never went the length of *abscess*, and the fluid accumulated within the sheaths invariably became absorbed. Our first case of syphilitic synovitis furnishes us with a very convincing example.

Is it not a singular pathological phenomenon, this meeting on the same ground with identical results, of two such totally distinct diseases as syphilis and gonorrhœa?

It is often difficult and at times even impossible to recognise what is distinctive and intrinsic in the two forms of synovitis, the syphilitic and gonorrhœal, and to refer either to its true cause. The synovitis of urethral origin is less fixed, has more tendency to resolution, is more diffuse and neuralgic, and in a word, more rheumatic than the syphilitic form.

But supposing this differential characteristic, which is not always revealed at first sight, to be wanting, there will still be found beyond these morbid appearances elements of diagnosis a little more certain.

Without entering upon pathological details, I shall confine myself to pointing out one important although inexplicable circumstance. It is this:—

Syphilitic tendinous synovitis is excessively rare among males.[1]

prognosis in predicting an early outbreak of secondary symptoms. I saw him on the 13th March, and he described to me what I now report.

Fifteen days after leaving hospital, about 12th February 1875 (sixty-second day of the genital affection), he observed spots of an *erythematous roseola* over his entire body; shortly afterwards the throat became affected. The doctor who treated him in the country gave him mercury and cauterized the mucous patches inside the mouth several times.

On 13th March, when the patient came to consult me, I found his body covered with a *papular roseola*. He had besides crusts amongst the hair, hypertrophy of the tonsils, and an erythematous redness of the isthmus. The urethritis had not returned, and there was no trace of synovitis or other functional trouble.

This first outbreak of syphilitic symptoms had not in the least altered his general health, and had no effect on the articulations or synovial sheaths. Is not this a new proof that the tendinous synovitis from which he had suffered thirteen days after the commencement of the genital affection, depended, as I sought to establish, not on the syphilis, but on the purulent urethritis. With regard to the painful spot on the spine of the scapula, it must be attributed to a circumscribed *periostitis* produced in the same manner.

[1] Synovitis of the tendon of the biceps is not the ordinary cause of the curious syphilitic affection of the biceps brachialis, which is frequently observed among men, and which interferes with the extension of the forearm on the arm. This affection has been well described by Dr Notta (de Lisieux) under the name of *contraction of the biceps;* its nature is still very obscure.

Among several thousands of syphilitic patients whom I have attended during the last seven years, I have only observed one case of tendinous synovitis, the one whose case I have read to you.

Syphilitic tendinous synovitis is not common, but infinitely less rare among women.

On the other hand, tendinous synovitis of urethral origin is tolerably frequent among men, while it is rare with women.

In this way we can speak *a priori* with a fair amount of certainty, that when the synovitis occurs in a female it is syphilitic; if in a male it is urethral. But above these two proximate causes, and unconnected with gonorrhœal or inflammatory urethritis, there always remains an etiological influence of more importance and frequency; I speak of the *arthritic, rheumatic, or gouty predisposition.*

THE following statistics are quoted by a French Dental Journal from the *Missouri Dental Journal* (date not given):—

Professor Andrews of Chicago, in a laborious statistical inquiry embracing 209,893 cases of administration of anæsthetics, gives the following as the relative proportion of deaths:—

Sulphuric ether, . . .	1 death	in	23,204	cases.
Chloroform, . . .	„	„	2,723	„
Chloroform and ether, mixed,	„	„	5,588	„
Bichloride of methylene, .	„	„	7,000	„
Nitrous oxide, . . .	„	„	75,000	„

OVARIOTOMY WITH PREGNANCY. CÆSAREAN OPERATION; CURE. By THOMAS HILLAS, M.R.C.S. Eng.—At a meeting of the Medical Society of Victoria, held December 1874, the following case was related:—Mary M'C., aged twenty-four years, single, was admitted to the Ballarat District Hospital, 4th June 1872. The history of her case was peculiar. She believed that she became pregnant in March 1871, and, not wishing to be confined in the district in which she lived, she sought admission to the lying-in ward of the Ballarat Benevolent Asylum. She was admitted there in November 1871, and after staying there until the following June, a consultation of the honorary staff was called, and she was discharged, her case being deemed ovarian dropsy, and not pregnancy. On her admission to the hospital she was examined by the resident surgeon, and subsequently by the honorary surgical and medical staff, all agreeing that she was suffering from ovarian dropsy, and that it was a suitable case for operation. On 13th June, assisted by the honorary surgeons, Messrs Nicholson and Whitcomb, and the resident surgeon, Mr Owen, and the honorary medical staff, the patient being under chloroform, I commenced the operation, by an incision midway between the umbilicus and pubes. On arriving at the peritoneum, I made a small opening into it, when out spurted a large jet of venous blood which the pressure of the finger controlled. I came to the conclusion that I had wounded, unwittingly, a gravid uterus, and, feeling sure of this, I extended the first incision upward to the umbilicus, when a large uterus rolled out on to the thighs, and the ovarian sac protruded. This was tapped, and about eleven quarts of fluid were drawn off; there were but few adhesions, which were easily broken down, and there was no hæmorrhage. The sac contained about a dozen small cysts, but, the external wound being large, there was no occasion to tap them. The pedicle was short and thick, and, after being tied firmly with a double whipcord ligature, the clamp was securely applied, and the pedicle divided, the ends of the double ligature being tied over the ends of the clamp. Now came the difficulty. The uterus was all this time lying on the thighs, with a fœtus in it, and a wound through its muscles, probably into the placenta. Some of the bystanders advised that the wound in the uterus should be sewn up, and that organ replaced in the abdomen; but seeing that labour must come on soon, and that the rupture of the uterus would most likely occur at the seat of injury, I personally decided to perform the cæsarean operation, as being the most likely means of giving the patient a chance to recover. The uterus was incised to about five inches, and the placenta and a fœtus, alive, and well developed, at about the eighth month of gestation, extracted. I then stitched up the wound in the uterus, with about nine or ten silver-wire sutures, carefully tucking the cut ends down into the incision. Immediately on completing this the uterus contracted firmly. I then sewed up the wound in the abdomen with deep and superficial stitches, the deep stitches including the peritoneum, leaving the clamp at the lower margin of the wound, and a good deal dragged upon. The right ovary was the one affected, and the patient measured sixty inches round the abdomen before the operation. The sac and its contents, after removal, weighed thirteen pounds, and are preserved in the hospital dispensary. The patient vomited for about forty-eight hours after the operation, having been an hour under chloroform. This was relieved by morphia and ice, and on the fourth day all unfavourable symptoms abated. There was a discharge of pus from the lower portion of the wound, which ceased in about a fortnight, and then it completely healed. She was discharged, cured, at the end of six weeks. On 3d July, a month after the operation, she menstruated moderately for four days, and again on 28th August. I have seen her several times since, and she is in perfect health.—*Australian Medical Journal*, February 1875.

PATHOGNOMONIC SIGN OF LUXATION OF THE HUMERUS.—Professor Dugas, some years ago, described, in the American Medical Association, a new method of diagnosis in luxation of the shoulder-joint. The subject has been recently revived in the *Nashville Medical Journal*, which gives the following description :—"If the fingers of the injured limb can be placed by the patient or by the surgeon upon the sound shoulder while the elbow touches the thorax, *there* *can be no dislocation;* and if this cannot be done, there *must* be a dislocation. In other words, it is *physically impossible* to bring the elbow in contact with the sternum or front of the thorax if there be a dislocation; and the inability to do this is *proof positive* of the existence of dislocation, inasmuch as no other injury of the shoulder-joint can induce this inability."—*Philadelphia Medical Times,* 17th July.

REMOVAL FROM THE HAND OF HALF A NEEDLE, ITS PRESENCE BEING DETECTED BY THE "GALVANIC NEEDLE."—Mrs B. applied to Mr Ormsby on 21st June 1875, stating that four years ago she was washing, and a needle happened to be in the clothes, which she did not see until it had passed deeply through the ball of her left thumb, and the point entered at one part and passed out at the other. She seized hold of the point, but in so doing it broke off short, leaving the portion with the eye still in the palm of her hand. It did not pain her much at the time, so she did not apply for advice, but frequently there was pain in the spot. Some time afterwards there was no mark at the spot, nor yet when she applied could the needle be felt with the most delicate tactile manipulation; so much so, that Mr Ormsby did not believe the needle could be there, and particularly so after four years had elapsed. However, he galvanized a small portion of a needle with a magnet, and suspended this with a piece of the finest silk, and then having the needle evenly balanced, he fastened the end of the silk to a thin piece of splint board, and so suspended it that the galvanic needle would hang just close to the woman's hand resting on the table, but not long enough to touch it. When the needle suspended became perfectly at rest the hand was cautiously drawn along the table in different directions, close to the spot where the woman thought the needle went in, and when the spot came immediately under the point of the galvanic needle it dipped perceptibly, and was so forcibly attracted that the galvanic point turned round and remained in contact with the skin immediately over the broken piece of needle in the hand. This movement was repeated three or four times, so as to verify the accuracy of the experiment. This spot was carefully marked, and ether spray was applied to the part, so as to produce local anæsthesia, and then a small incision made, a fine-pointed forceps introduced, which quickly drew out the largest half of a needle with the eye in it, which the woman stated was fully four years lying embedded in her hand. The needle was much worn, and was black and oxidized, and appeared by its look to have been a long period in contact with the tissues. Mr Ormsby mentioned that the galvanic needle should always be suspended from a piece of wood, or something strong, which should be at perfect rest, for the hand could not be depended on, so as to make sure that the dipping of the needle was caused by attraction, and not by the involuntary movement of the hand; also that the suspending silk should be of hair-like fineness, so as to ensure success in the experiment. He thought the galvanic needle was a most valuable aid to diagnosis, and would, if properly applied, be the means of detecting the presence of metallic substances in many such doubtful cases.—*Medical Press and Circular,* 4th Aug.

A Case of Traumatic Aneurism of the Left Subclavian Artery treated successfully by Distal Compression. By Warren Stone, M.D., New Orleans.—The following is a brief abstract of a most interesting case:—

T. C., æt. 25, was wounded by a pistol-ball on 22d April 1874. It entered immediately above left clavicle, about ½ to ¾ of an inch from sterno-clavicular articulation, and passed downwards and backwards, lodging under skin at posterior border. Patient walked two squares, and afterwards spat a little blood. When seen three hours after accident, there was collapse, intense pain in, and partial paralysis of brachial plexus. After two weeks under suitable treatment, patient seemed quite well. A month after the wound, an aneurism as large as a guinea-fowl egg had formed on subclavian. Distal digital compression was commenced nearly two months after the wound, and kept up for 39 hours; stopped in consequence of pain, fatigue, and sloughing of the soft parts. Tumour was at once diminished to one half its size, and pulsation was feebler. No further surgical treatment was adopted, but patient was carefully watched; and in eleven months after the wound, all pulsation had ceased, and the tumour is as hard as a marble, and quite small. Pulsation in left wrist is very feeble.

Concerning Gout.—A Letter written by the Late Dr James Jackson.—Messrs Editors,—The following letter, genial, thorough, and explicit, was written by old Dr James Jackson to a grateful fellow-citizen, whose great toe to this day gives thanks that the doctor did not think his fee earned by a simple "Avoid wine, and keep out of doors as much as you conveniently can":—

⁂

My Dear Sir,—In accordance with my promise, I am about to address you on the subject of gout.

The first question on this subject is whether anything can be done to prevent the occurrence of the disease in one who is liable to it. I do not think that you can certainly prevent it, but that you may lessen the chance of having it, at least of having it often or severely. The prospect of benefit is good enough to make it worth while to take the necessary care; especially as this does not involve anything injurious to health or anything difficult to do. Gout, you know, is the disease of a gentleman. In England it occurs among great scholars, distinguished professional men, and hard-working statesmen. I don't know whether a man would be allowed to be prime minister long unless he had the gout. In other language, it occurs in men who drink wine freely, and employ their minds over much; especially if this employment be connected with great responsibilities and anxiety of mind, and still more if they lead sedentary lives. I would not limit the disease too much. It may, perhaps, be found among stupid and dull plodders; and sometimes the juice of apples well fermented may take the place of the juice of the grape. I doubt, however, whether brandy would bring on the true gentlemanly disease, even in a duke.

You may find out by the above how to take rank among the great men of our good fatherland; but if you indulge any tender regard to your great toes, you may learn how to avoid the malady. To this end, first, give up wine and all fermented liquors, until something occurs to show that you have need of them. Drink water pure and simple, or season it by tea, coffee, or cocoa. I do not say by lemons, for there is some doubt as to the free use of strong vegetable acids.

Secondly, let your diet be plain and simple, not taking much variety at any one meal. If you are disposed to be costive, take a due portion of laxative food. By a due portion I mean as much as you find necessary on trial. Costiveness is bad for any man, but especially so for any one who is prone to the gout. By laxative food I mean: (1.) Bread made of wheat meal not sifted, instead of wheat flour. (2.) Fruit of all kinds, especially such as is tender and somewhat sweet, or at least not sour or austere; hard fruit, such as apples, is better if cooked in the skin; among fruits remember squash and tomato. (3.) Succulent vegetables, such as the greens in the spring and the green vegetables in the summer. (4.) Sweet oil, and to some extent the fat of meat. These articles are not to exclude flesh and fish. It is well to take those once a day, at least, for nourishment.

Third, take exercise, freely, liberally, heartily, not grudgingly, as if you hated to lose the time. Make it pleasant; exercise in the open air, on foot, on horseback, both.

Work in your garden if you have any taste for it. But gardening is one of the fine arts not to be polluted by those who do not love it. Do not talk about the weather, or at any rate do not omit exercise entirely because the weather is bad. If there is a snowstorm, take a man and horses and break the paths if you cannot do better. In connexion with this I may recommend cold bathing every morning, with good friction after it. It helps very much. But do not think that any little lady's work like this is to be compared with good hard exercise in the open air.

Fourth, as to business and head work. Shall I advise you to give it all up? No such thing. It is your mission, as the modern good folks say, to do business and make money, so that you may do a great deal of good. But do not sell yourself to it, for then perhaps you may find that a devil is cloaked under it. Keep your business in such bounds as that it shall not prevent you from taking care of your wife and children, to keep them well, nor from taking care of your wife's husband, lest she should not get another. If a man won't do that, he is not a good husband. I know that when a man engages in business he cannot always keep it within exact limits. But if he determines to try, he will commonly succeed. It is your business to decide which field you will plough up this summer, which you shall allot to corn and which to potatoes, etc. But you are not to do the hoeing for any of them. If the hay is down and there comes a thunder-shower, you must leave your foreman to put it in, unless he happens to be struck by the lightning, and then you may turn out. But that will happen only once in ten years. You cannot avoid responsibility, but you must not be anxious. Lay by as many lacs of rupees as you think necessary in some proper bank; then sport with the rest if you please, but only if you can keep on laughing if you lose.

Do not be anxious about business matters, nor about anything which can be avoided. Lastly, keep good hours. Early to bed and early to rise—at any rate rise early. It is not a matter of poetry that the morning air brings health more than that of any other part of the day. So much for prevention.

If you take what I say to heart and bring it out in your life, you may not need anything more. But I won't promise that. Causes beyond your control may bring the gout. What shall you do then? Or can you do anything? I think you can. I believe that colchicum will rarely fail to carry off a fit of the gout, if it be used in a proper dose, as soon as the fit comes on. While this is going on you should omit flesh and fish, and live on bread or some vegetable article of a mild kind, with tea or cocoa, or milk if that suits your stomach. Do not return to common diet until the local disease has been gone two days and your appetite has returned. Under this treatment I think you will not need any local application.

Most persons feel better to have the part covered by thin flannel, but you may do as you may find most comfortable on that score. If the heat and pain are great, I think a little tepid water the best application; that is, you should wet a piece of cotton-cloth, doubled, in the tepid water, and apply that to the part affected. There is no harm in mixing a little rum with the water, so long as you do not taste of it, but I do not know that there is any good in it. Old folks think it safer to add the rum, but we young ones know that the old have many notions.

And now I hope that you may live a hundred years, and every year laugh at the old doctor who has written this long epistle to you in August 1855, because he was frightened at a little swelling on your great toe. Yours truly, J. JACKSON.—*Boston Medical and Surgical Journal.*

PERIOSTITIS OF THE TEMPORAL BONE COMPLICATING PURULENT OTITIS.—Dr Duplay observes that when, in the course of an acute or chronic purulent otitis, pain, swelling, and redness of the periauricular and mastoid region supervene, we at once suspect that a grave complication has arisen, and we fear that suppuration of the mastoid cells has occurred. Under appropriate treatment, these symptoms may all gradually disappear, and resolution take place, or the inflammation may proceed to suppuration, from which, after the spontaneous or artificial evacuation of the matter from the mastoid cells, the patient may make a good recovery. The cases to which Dr Duplay desires more particularly to draw attention, are those of external periostitis over the mastoid process, which he thinks is not sufficiently known. In his experience, it supervenes most frequently in the course of purulent catarrh of the tympanum, with destruction of the membrana tympani, and implication of the part corresponding in the newly-born infant to the osseous meatus auditorius. The treatment should consist in making a very free opening as soon as the presence of matter is determined.—*Archives Générales de Médecine*, May 1875.

FEMALE DOCTORS.—For some years the question of the admission of women to the practice of medicine has been discussed in different countries, and answered in diverse manners. Russia has gone so far as to enrol feminine army surgeons, while England, on the other hand, has refused all admission. It appears to us that the discussion has been perplexed by confounding two distinct questions, Have women the right to practise medicine? Are women wise in exercising this right? The first question, it appears to us, must be answered in the affirmative, except by those who pretend that the State, by superior wisdom, has the right to prevent each one to exercise his or her faculties. It is very well to say that a woman is made to marry, to become a mother, and to bring up her children; but we know there is a large class who by choice or by necessity remain single, while many are widowed, and are obliged to support themselves by work, and have the right to engage in any respectable occupation. The course taken by the French Faculties seems therefore perfectly just; admitting the necessity of fulfilling certain conditions in their candidates, they are right not to trouble themselves about the sex of the person fulfilling them. This conduct is more logical, and less dangerous to the public good, than that of the English Schools. We now come to the second point: Is it good for a woman to embrace the medical profession? We suppose it to be understood that she wishes to exercise her vocation seriously and sincerely; and we say frankly that the first condition necessary for the accomplishment of that wish is for her to cease to be a woman. It is necessary that she should comprehend that, destined by nature for the duties of a mother, she differs from a man not only in her reproductive organs, but by her nervous system, her intelligence, her entire being, *totâ substantiâ*. She is not the equal nor the inferior of man; she is different. Putting aside the possible degree to which her intelligence might be cultivated, of which we have only partial experience, let us say that what experience we have tends to prove that though, as in the women of the eighteenth century, great intellectual culture may be united with qualities essentially feminine, it is on condition of not trenching upon those subjects in which taste, delicacy, imagination, and sentiment play no part. The genius of women equals or excels that of men in certain orders of ideas, but in others it appears condemned to an incurable inferiority. In these exceptional instances in which women have been endowed with the intellectual characteristics of men, it has been at the expense of all that makes a woman attractive. However, we do not insist that some of this may not be due to defective training, and that something may be done by education to repress the sensitive and sentimental side of the feminine character. Let us admit that a woman has passed through her medical curriculum and previous studies without losing her feminine attractions—nay, may have gained something in this respect; then she marries; her husband, exceptionally free from prejudices, and full of confidence in her, allows her to continue in practice; children are born; every nine months four or five at least of incapacity for practice, and that gets on as it may; the child born, she has the choice of abandoning her practice to nurse it, or leaving it to others. And would any woman worthy of the name of doctor neglect her duties as a mother? When it is sick, will she leave its side to go to care for strangers? and so on, a continual struggle between maternal and professional duties. But suppose she does not marry, she suppresses the tender part of her nature, her sentiment, her emotions, and, changing her moral nature, yet loses nothing by that change; still her organization is not apt to bear the fatigues of daily work. Say, by training, this is overcome; her osseous, muscular, and nervous systems are made as nearly as can be equal to a man's: but though the woman is lost, the female remains. She is still liable to that periodical infirmity which does not confine itself simply to a loss of blood. Menstruation produces upon woman physical, moral, and intellectual disturbances more or less marked, and producing, directly and indirectly, undoubted modifications of her intellectual functions, besides increasing her risk of contracting contagious diseases. The limits in which this influence acts differ, no doubt, in individuals, but it is to be feared they extend in proportion to the culture and refinement of the subject. This sole consideration should suffice to prevent sensible women from engaging in medical practice, and would scatter their patients. We will not enter into the thousand petty inconveniences attending the nocturnal practice of medicine by women. Let us confine ourselves to repeating, in conclusion, that women can only hope to succeed in the practice of medicine when they have succeeded in unsexing themselves. By physiological laws, the female doctor is a fabulous creature, hermaphrodite, or sexless—in every way a monster. Let those who desire this distinction try to attain it.—*Le Progrès Médical.*

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Action of Medicines on the Vessels of the Brain.—This has been the subject of investigation by Schüller. He removed from rabbits, with a trephine, a portion of the upper part of the parietal bone, without injuring the dura mater. He was thus enabled to see the vessels of the pia mater. Small sinapisms produced hardly any effect, but large ones caused at first dilatation and then contraction. Schüller explains this by supposing that irritation of the sensory cutaneous nerves produces, by reflex action, partial paralysis of the vaso-motors, and that later on the influence of the peripheral congestion predominates. Nitrite of amyl causes evident dilatation, both of arteries and of veins. Ergotin produces strong and long-continued contraction. The contractions produced by the latter drug were sufficiently powerful to overcome the dilatations caused by the nitrite of amyl. Opium produces first dilatation and then contraction. Chloroform inhalation produces at first contraction and then relaxation, with well-marked venous stasis, a condition which was quickly relieved by nitrite of amyl. In cases of advanced narcotism from chloroform, nitrite of amyl was found to rapidly relieve the dyspnœa and laboured respiration, to renew the strength of the pulse, and to restore the reflex excitability.—*Berliner Klinische Wochenschrift*, Nos. 25 and 26, 1874.

Anæsthetics.—In the first of his Cantor lectures on the action and uses of alcohol, Dr B. Ward Richardson gives the following list of substances which will produce anæsthetic sleep. Those in italics are derived from alcohol. Nitrous oxide gas, carbonic oxide gas, carbonic acid gas, bisulphide of carbon, light carburetted hydrogen, hydride of methyl or marsh gas, methylic alcohol, methylic ether gas, chloride of methyl gas, *bichloride of methylene, terchloride of formyl or chloroform, tetrachloride of carbon,* heavy carburetted hydrogen, *olefiant gas or ethylene, ethylic or absolute ether, chloride of ethyl, bichloride of ethylene, bromide of ethyl or hydrobromic ether,* hydride of amyl, amylene, benzol, turpentine spirit.

The Physiology of Vomiting and the Action of Emetics—Dr Lauder Brunton sums up an extremely interesting paper on this subject, as follows:—1. Vomiting consists of two factors, viz., (1.) The simultaneous compression of the stomach by the abdominal muscles and diaphragm, and (2.) the opening of the cardiac orifice by the contraction of the longitudinal fibres of the œsophagus. 2. When innervation is disturbed, these two factors do not occur together, and thus retching may occur without vomiting. 3. The movements of vomiting are correlated by a nervous centre in the medulla oblongata, from which impulses are sent down through various motor nerves to the muscular structures engaged in the act. 4. This nervous centre is probably closely connected with the respiratory centre, but is not identical with it. 5. It is usually set in action reflexly by irritation of the pharyngeal, gastric, hepatic, enteric, renal, uterine, ovarian, and possibly also by the pulmonary and vesical nerves, which come from the periphery towards it. It may also be excited by impressions sent down to it from the brain. 6. Vomiting may be arrested in two ways, either by removing the irritant which is exciting the vomiting centre, or by lessening the excitability itself, so that the centre no longer responds to the impressions made on it from without. 7. Emetics may be divided into two classes: those which act only on the stomach, and those which act on the vomiting centre also. 8. Tartar emetic probably acts in both ways. Tolerance of it is probably due to want of hydrochloric acid in the stomach. 9. Emetics may be used to evacuate the stomach and duodenum. They thus remove irritating matter, poison generated in the stomach by putrefaction, bile, and metals, or fever poisons circulating in the entero-hepatic circulation. 10. They may be also used to empty the bronchi and gall-bladder, or to cut short epileptic, and to prevent ague fits.—*Practitioner.*

In the *Archives Générales de Médecine* for June, in an analysis of M. Grasset's thesis on emetic medication—Emetics may be divided into three classes, according to their mode of action:—1. Peripheric emetics, which act by exciting the extremities of the pneumogastrics, and of which ipecacuanha is an example. 2. Central emetics, which act by exciting the vomitive centre in the medulla oblongata, and of which apomorphia is an illustration. 3. Mixed emetics, which act by simultaneously exciting the peripheric extremities of the pneumogastrics and the vomitive centre, such as tartar emetic. Emetics, besides inducing sickness, generally have a local irritant affect on the skin and mucous membrane; they modify the respiration, circulation, and temperature; they increase the secretions, and they diminish the excitability of the striated muscles.

THERAPEUTIC ACTION OF OLEUM ALEURITIS TRILOBÆ.—In the *Anales di Medicina de la Habana,* 1874, Dr C. Oxamendi has an article on oleum aleuritis trilobæ, which is proposed as a substitute for castor-oil. It is an euphorbiaceous plant, growing in all intertropical countries, and chiefly in India, where it is commonly known as "candle-nut tree," or "candleberry." In Ceylon it is called "kekune oil," and in England it is known as "nut-oil" or "artist's oil." Dr Oxamendi finds that half an ounce is a sufficient dose as a purgative for an adult. It greatly resembles castor-oil in its effects on the bowels. It has a pleasant taste, and acts in about three hours after its administration, gently, and without griping. Dr Oxamendi attributes its laxative properties chiefly to the presence of a special resin which irritates the mucous membrane; he recommends the following formula for its administration:—

℞ Olei nucis aleuritis trilobæ, ℥ss.
Gummi arabici, ʒiii.
Aquæ communis, ℥iii.
Sacchari albi, ʒss. M.

ANTIARIN.—In Stricker's *Jahrbücher*, Dr C. von Schroff, jun., writes on the action of antiarin on the circulation. Antiarin is obtained from the arrow poison of Java, a product of the upas antiar. Schroff upholds the view that antiarin acts directly either on the muscles or ganglia of the heart, and not through the central nervous system. His numerous experiments tend to prove that it diminishes the irritability of the peripheral terminations of the vagus, that it enhances the tone of the muscular fibre-cells of the bloodvessels, or of the vaso-motor centres, and that it paralyzes the heart directly.

TREATMENT OF DIABETES MELLITUS WITH CARBOLIC ACID.—A case of diabetes successfully treated with carbolic acid is quoted in the *Philadelphia Medical Times*, 30th January, from the *Gaz. Med. de Bahia*. Fifteen and a half grains of the crystals of carbolic acid were dissolved in an ounce each of peppermint water and distilled water, and a sixth part of this was administered morning and evening.

CARBOLIC ACID IN ERYSIPELAS.—Dr Munsell speaks highly of the topical use of carbolic acid in erysipelas. Twice in the twenty-four hours, he applies a strong solution of the acid in glycerine and rose-water in combination with tincture of iodine, and with sulphite of soda added to prevent discoloration. He has obtained successful results in the phlegmonous form of erysipelas by the hypodermic injection of carbolic acid as proposed by Aufrecht.—*Philadelphia Medical and Surgical Reporter*, 26th December 1874. Dr Hirschberg relates a case of traumatic erysipelas which was successfully treated by hypodermic injections of a two per cent. solution of carbolic acid.—*Berliner Klin. Woch.*

CARBOLIC ACID IN PHTHISIS.—In a recent work by C. G. Rothe, of Attenburg, that author recommends inhalations of carbolic acid in phthisis. The following is his formula—Carbolic acid (crystals) and spirits of wine, of each two parts; tincture of iodine, one part; distilled water, ten parts; mix; add 25 or 30 drops to a tablespoonful or two of water, for an inhalation.

CARBOLIC ACID IN PSORIASIS.—Dr Zimmerhaus gives pills, each containing three-fourths of a grain of carbolic acid, in the treatment of psoriasis. He commences with the daily administration of six pills, gradually increasing to twenty pills in the twenty-four hours. In from four to seven weeks under this treatment the cutaneous affection disappears.—*Weiner Medizinische Presse*, No. 42.

CARBOLIC ACID AND HYPOSULPHITES IN SCARLATINA.—Dr Bland (*Trans. Med. Soc. State of Pennsylvania*) states that his results in the treatment of scarlatina with these remedies is unprecedented. He applies the carbolic acid with glycerine topically to the fauces, etc.; and gives hyposulphite of soda internally, together with nutritious diet and febrifuge mixtures as required.

ANTIDOTE TO CARBOLIC ACID.—Husemann has ascertained experimentally that alkalis and alkaline earths are the best antidotes to carbolic acid. He prefers a saccharate of lime, which he prepares by dissolving sixteen parts of sugar in forty of water, and adding five parts of caustic lime. The mixture is digested for a few days, and then filtered and evaporated to dryness. It is readily soluble in water.—*Der Praktische Artz*, Jahrg. xv. No. 9.

CROTON-CHLORAL HYDRATE.—In the *Berliner Klin. Wochenschrift*, No. 21, 1875, is an important paper by Dr von Mering on the Physiological and Therapeutic Action of Croton-Chloral Hydrate. Liebreich's theory as to the action of this substance in the living body is, that it is decomposed by the alkaline blood into dichlorallylene, thus: $C_4H_3Cl_3O + KHO = C_3H_2Cl_2 + KCl + H_2CO_2$. Dr Mering, however, finds that trichlorocrotinic acid, which also decomposes into dichlorallylene, is positively inert; and, moreover, he failed to find any trace of dichlorallylene in the urine of patients who had taken large doses of croton-chloral hydrate. He found that under the influence of this drug the frequency of the respiration in rabbits steadily diminishes until the animal dies. Other experiments proved that under the influence of small doses the blood-pressure was temporarily diminished, while it was reduced almost to zero by large doses, consequent on paralysis of the muscular coat of the arteries, and on weakening of the heart's action. Croton-chloral hydrate at first increases the frequency of the pulse, but subsequently reduces it below the normal standard. It affects different animals differently. Thus, it exerts a powerful influence on cats, while it affects dogs in a very slight degree. Dr Mering has found the employment of croton-chloral hydrate in the treatment of facial neuralgia and sciatica, etc., very unsatisfactory. His patients were not at all relieved by 0·8 gramme four times daily, while morphia at once relieved them. It proved in his hands equally unsatisfactory as a hypnotic. He believes that in cases of heart disease it is preferable to chloral, as being less likely to depress the circulation; and here again he differs essentially from Liebreich, who insists on the utmost caution in the use of this drug in heart disease. The *Medical Times and Gazette*, 12th June, in alluding to those researches of Mering, also draws attention to the very recent work of Dr A. Weill, a French physician, who arrives at almost opposite conclusions. In his experiments he has never observed any important modifications in the functions of respiration and circulation by croton-chloral hydrate. In large doses, however, it kills by arresting the circulation. He is in accord with Liebreich in believing that its primary action is on the sensory cranial nerves, that it secondarily affects the spinal sensory nerves, and that the motor branches are but slightly if at all affected. He believes that there is a close resemblance physiologically between croton-chloral and chloral, but he considers the former to be the more powerful hypnotic. He recommends it in neuralgias, in spasmodic nervous affections, to allay cough in chronic lung disease, etc. He gives it in doses of ½ to 1½ grain at first, and he administers it with extract of liquorice to conceal its nauseous taste.

CURARE.—In *Reichert und Du Bois-Remond's Archiv*, 1875, Heft 2, Dr J. Steiner gives the results of his investigations as to the action of curare on the lower animals. In fishes it paralyzes (*a*) the central organ of voluntary movement, (*b*) the respiratory centre, and (*c*) the motor nerves. In fishes paralysis of the motor nerves occurs much later than in the highly organized amphibians, birds, and mammals. The late occurrence of the paralysis of the motor nerves increases with the size of the fish in spite of a larger dose. In the electric rays, paralysis of the electrical nerves occurs much later than that of the motor nerves. In snails, starfish, and holothuria, only paralysis of the central organ of voluntary movement occurs. In the medusæ it appears to exert no influence.

DAMIANA.—Damiana is a Mexican plant, described by Dr J. J. Caldwell of Baltimore in the *Virginia Medical Monthly*. It is accredited with extraordinary aphrodisiac properties. We will defer extended allusion to the drug until its efficacy has been further tested.

ESERINE IN CHOREA.—M. Bouchut made 437 experiments with the active principle of Calabar bean in children from seven to twelve years of age suffering from chorea. He gave it sometimes by the mouth, and sometimes hypodermically, in doses of from $\frac{1}{75}$th to $\frac{1}{12}$th of a grain. A dose of $\frac{1}{12}$th of a grain produced pallor, nausea, salivation, *malaise*, and occasionally vomiting. The pupils were often unaffected, but were sometimes dilated, and sometimes contracted. Perspiration was a frequent occurrence. The veins of the retina were contracted, and the fundus of the eye was pale.

Enfeeblement, or even temporary paralysis of the diaphragm, sometimes occurred. These symptoms lasted from two to three hours, but no unpleasant after-effects were observed. The dose suitable for a subcutaneous injection is $\frac{1}{36}$th of a grain. This dose does not cause unpleasant effects, and may be repeated two or three times daily. The drug always arrests the choreic movements while its physiological effects last. Daily injections cure the disease in about ten days.—*Bull. Gén. de Thérapeutique*, 15th April.

EUCALYPTUS.—In Schmidt's *Jahrbücher der Gasammter Medicin*, January, is a record of the investigations of Drs H. Schläger and Mees as to the action of eucalyptus. The former has found that when eucalyptol is injected under the skin it causes an elevation instead of a fall in temperature; but this does not occur when it is given by the mouth. Injection of decoction of eucalyptus into the jugular veins of dogs caused diminution of the blood pressure and retardation of the heart's action. It would seem that eucalyptol exerts a direct action on the musculo-motor apparatus of the heart. Dr Mees's experiments show that eucalyptol retards putrefaction, and arrests the development of the bacterium termo.

In a paper read some few months ago before the Royal Society of Victoria by Mr J. Bosisto, he enters fully into the question as to whether the eucalyptus is really a fever-destroying tree. Eucalyptus constitutes four-fifths of Australian vegetation, and he arrives at the conclusion that the immunity of that country from fever maladies is certainly due to this characteristic vegetation. He attributes the beneficial influence exerted by the plant to its powerful root-action in absorbing humidity from the earth; to the fact that it is evergreen and in continuous action; to its abundant leaf-surface; to the evaporation of water, oil, and acid under a perpetually genial atmosphere; and to the power of its volatile oil and volatile acid to produce peroxide of hydrogen.

GRINDELIA ROBUSTA.—Dr P. C. Smith of Cloverdale, California, relates a case of spasmodic asthma which was successfully treated by solid extract of Grindelia robusta. This remedy was administered in the form of pills, two or three grains three times daily at first, and then two or three grains at bedtime only.—*Pacific Medical Journal.*

LOBELINA.—Dr Ott of Easton, Pennsylvania, writing of lobelina in the *Boston Medical and Surgical Journal*, 28th January, states that it is a dark oily liquid with a specific gravity heavier than that of water, and with an odour and taste like tobacco. In small doses it increases the blood-pressure, apparently by acting as an excitant on the peripheral vaso-motor system. The pulse is temporarily reduced, and then increased. It is chiefly a respiratory poison, and in the cat it greatly reduces the temperature. In his experiments Dr Ott used a solution, the strength of which was 4-5ths of a drop of lobelina to one cubic centimetre of water, with a few drops of acetic acid, care being taken that the solution was perfectly neutral.

PICROTOXINE IN EPILEPSY.—In a recent work to which was awarded the Barbier prize of the Paris Academy of Medicine, M. Felix Planat recommends the active principle of cocculus indicus as a remedy for epilepsy. He administers it thus: Cocculus indicus, 200 grammes; alcohol, 1000 grammes; macerate for three weeks. Give two or three drops daily at first, and then diminish the dose gradually. The treatment should be continued for several months, perhaps even for a year.

POTENTILLA REPTANS.—In the *American Journal of Pharmacy*, vol. v., Mr Maisch describes the botanical and therapeutical properties of the genus potentilla, and in the *Charleston Medical Journal and Review*, Dr William Hauser also describes its therapeutical application. The latter writer states that it is the best and most powerful sudorific he has ever found, and that, under certain circumstances, it is diuretic also. He states, that after an experience of more than twenty years, he has never found anything to equal it in the treatment of puerperal peritonitis. His method of administering it is this: He makes as strong a decoction as possible of the leaves, vines, and roots, and of this he gives large draughts, as hot as it can be taken, every half-hour until the patient is thrown into a full perspiration. Dr Richard Moore some years ago drew attention to the efficacy of this remedy in chronic colds and threatened phthisis. These authors name the plant used by them potentilla reptans, but the Linnæan plant of this name is a native of Europe and Asia, and does not occur in America; it is represented on that continent by the potentilla Canadensis.

Part Fourth.

MEDICAL NEWS.

DR WILLIAM STEPHENSON has been appointed Professor of Midwifery in the University of Aberdeen. His place here as Lecturer on the Diseases of Children will not be easily supplied.

DR J. BELL PETTIGREW succeeds Dr O. H. Bell as Professor of Anatomy at St Andrews, and is succeeded in the Lectureship of Physiology in the School of Medicine at Surgeons' Hall by Dr M'Kendrick.

MR ANDREW WILSON, Ph.D., commences a course of lectures upon Zoology in the same School.

OBITUARY.

JOHN HUGHES BENNETT.

It was found impossible to introduce into the Journal of last month an adequate notice of the life and works of this distinguished physician and physiologist, as the number had been completed prior to the day of his death. The great services rendered by him to the Edinburgh School of Medicine, both as a Teacher and an Investigator, and the intimate connexion he had with this Journal during one period of its existence, demanded more recognition than could be given in a hasty obituary notice.[1]

John Hughes Bennett was born in London on 31st August 1812, and died at Norwich on 25th September 1875, in the sixty-fourth year of his age. He was educated at the Grammar and Mount Radford Schools at Exeter. His mother was a lady of brilliant intellectual powers, independence of spirit, and high culture, and from her he inherited many of those intellectual gifts and traits of character by which he was afterwards distinguished. It was she who cultivated his literary and artistic tastes, and trained him in the art of correct reading and elocution. To this must, no doubt, be attributed his well-known histrionic power, which, years afterwards, gave an elegance and finish to his lectures and public speeches rarely to be met with. During part of his education, he resided along with his mother in various parts of the Continent, more especially in France. He commenced the study of medicine in 1829, as an articled pupil to the late Mr Sedgwick, surgeon at Maidstone, intending in due time to obtain the diploma of the Royal College of Surgeons and the license of the Apothecaries' Company. It is said that for a short time he was a student at St Bartholomew's Hospital. As Mr Sedgwick's pupil, he became an adept in the art of dispensing, and engaged in the routine work of a general practice. Even at this early period of his professional career, he appears to have developed an interest in pathological inquiry.

After a short residence at Maidstone, he resolved to pursue his medical education in Edinburgh. Accordingly he enrolled himself as a student of the University in 1833. When he came to Edinburgh, he was unacquainted with any one; and it is a striking proof of his great talent, perseverance, and industry that, in the course of a very few years, he became well known, not only in Edinburgh, but throughout Europe. During his career as a student, he studied with zeal and assiduity; devoting his attention, however, more especially to anatomy, physiology, and pathology. He had as fellow-students such men as the two Goodsirs, Edward Forbes, John Hutton Balfour, John Reid, Martin

---

[1] A notice of the late Dr Bennett, written by the author of the present Obituary, appeared in the *British Medical Journal* of 9th October. Reference is made to it for further details.

Barry, and Henry Lonsdale, all of whom afterwards became distinguished leaders in science. With them and others he took an active part in the affairs of the Royal Medical Society, of which in due time he became a President. In this arena he cultivated the art of debate, and no doubt acquired by practice that fluency of speech and readiness in reply which were so serviceable to him in after-life. He regarded the Royal Medical Society as a most valuable adjunct to medical education and culture in Edinburgh.

In 1837 he received the degree of M.D., with the highest honours, obtaining, on the recommendation of the late Professor Syme, a gold medal for the best surgical report; whilst Sir Charles Bell recommended his thesis on the Physiology and Pathology of the Brain as worthy of another. He was afterwards informed by Mr Syme that he would have received a second medal, had there not been a rule that two medals could not be awarded to the same competitor.

After graduating, Dr Bennett proceeded to Paris, where he studied for two years, and became the founder and afterwards the President of the Parisian Medical Society; he also went to Germany, and spent other two years in the principal university cities. In Paris he devoted his attention chiefly to the study of the use of the microscope in practical medicine, and also to clinical instruction in the hospital. The clear, precise, methodical style pursued by the French physicians harmonized with his own qualities of mind, and there is little doubt the system of clinical instruction which he afterwards successfully introduced into Edinburgh was carefully elaborated by him while in Paris.

In 1841, he returned to Edinburgh, and in November he commenced a course of lectures on histology. Prior to this date, histology was taught in a general way, and demonstrations of microscopical preparations were given by other teachers, notably by Dr Allen Thomson, who then held the Chair of Institutes of Medicine in Edinburgh, and who is now the distinguished Professor of Anatomy in the University of Glasgow. But it appears that Dr Bennett was the first to teach the use of the microscope systematically, and it was he who first clearly recognised its great importance in the clinical investigation of disease. This course of instruction must also be regarded as the first attempt at the practical teaching of physiology and pathology made in this country. At the time he commenced this course of lectures, the value of the microscope in pathological research was not sufficiently known in this country. By instructing many of the rising members of the profession in the manipulation of this instrument, Dr Bennett not only advanced the interests of the Edinburgh Medical School by bringing its teaching to a level with that of Continental institutions, but he stimulated many ardent minds to enter upon a new path of inquiry which led to fruitful results.

On 1st October 1841, Dr Bennett published his "Treatise on the Oleum Jecoris Aselli, or Cod-Liver Oil, as a Therapeutic Agent in certain forms of Gout, Rheumatism, and Scrofula, with Cases." This work is dedicated to Dr (now Sir Robert) Christison, and is an early evidence of the long friendship which existed between these distinguished men. Whilst Dr Bennett resided in Germany, cod-liver oil was extensively used in the treatment of chronic gout, rheumatism, and of scrofula, and he lost no opportunity of watching its therapeutic effects. So impressed was he with its value, that almost immediately on his return home, he published the Treatise, which at the time excited great interest in the profession. To him no doubt belongs the credit of having more especially urged its use in the treatment of many cases of phthisis pulmonalis.

In 1842, he was an unsuccessful candidate for the chair of General Pathology in the University of Edinburgh, when the late Professor Henderson was appointed. He was able even at that early date to lay before the patrons of the chair numerous testimonials from Continental pathologists, and from many of the leading members of the profession at home. It is interesting now to read these prophetic documents, and to note how anticipations of a brilliant career for Dr Bennett were completely fulfilled. About this time he became Physician to the Royal Dispensary, and Pathologist to the Royal Infirmary. As one of the physicians to the Royal Dispensary, he gave six winter courses, each of six months' duration, and seven summer courses, each of three months' duration, on polyclinical medicine.. These classes were formed on the model of the German polyclinic, in which students are taught practically, under the eye of their teacher, to examine and prescribe for patients. The first course was delivered by Dr Bennett in the winter of 1841; although it must be recorded that the same method, as applied to surgery, had been previously introduced into the Surgical Hospital, Minto House, by the late Professor Syme.

Whilst acting as Pathologist to the Royal Infirmary, he worked with great diligence, and formed a private museum of morbid anatomy, containing about 800 wet and 300 dry preparations. He also delivered six winter courses of lectures on pathology and practice of physic, in which the special feature was the demonstration under the microscope of all accessible morbid tissues and fluids, with arrangements permitting each student to see and examine them himself.

From 1841 to 1849, Dr Bennett was closely connected with the journalistic literature of the Edinburgh Medical School. Up to the beginning of 1841, only one medical periodical was published in Edinburgh—the *Edinburgh Medical and Surgical Journal*, a quarterly, which had existed for many years, and was then published by Messrs A. and C. Black. On 1st January 1841, a new journal appeared, entitled the *London and Edinburgh Monthly Journal of Medical Science*, under the editorship of Dr (now Sir John Rose) Cormack, and published by H. Baillière of London, and

Messrs Maclachlan, Stewart, and Co., of Edinburgh. In 1842, it was published by John Churchill, Princes Street, Soho; in 1844, it bears on the titlepage that it was published "by the proprietors," and sold by Churchill, London, etc., etc. In 1845, the name of Messrs Sutherland and Knox appears after that of Churchill on the titlepage; and in 1846, the order of the publishers' names is exactly reversed. At the end of the number for May 1846, Dr Cormack announces that he has relinquished the editorship, and that Dr Bennett has been appointed to the office. From 1843 to 1846, a third journal existed in Edinburgh, known as the *Northern Journal of Medicine*, edited by the late Dr William Seller, and published by Mr Hugh Paton, then of Adam Square. This Journal existed until June 1846, when it was amalgamated with the *Monthly Journal of Medical Science*, under the joint editorship of Dr Seller and Dr Bennett. The former did not act for more than a few months as co-editor, and the office passed entirely into the hands of Dr Bennett. He soon became proprietor, and under his able management it proved to be a lucrative property. He afterwards sold it to Messrs Sutherland and Knox; and in 1849, we find it was edited by the late Professor Day of St Andrews, the late Dr A. Fleming of Birmingham, then Professor of Materia Medica in Cork, and Dr W. T. Gairdner, now Professor of Medicine in the University of Glasgow. Some time thereafter, Dr Bennett, along with several others, again bought the Journal from Messrs Sutherland and Knox. For a short time it was edited by the joint-proprietors, but Dr Bennett gradually acquired the interest of one after the other, until a second time he again became sole proprietor. It is remarkable, as showing the vicissitudes of the Journal, that he sold it a second time to Messrs Sutherland and Knox. He has frequently informed me that all his transactions in connexion with the Journal were attended by pecuniary profit. To complete the history of the Journal, it may be stated that with the October number of 1854, the venerable quarterly, the *Edinburgh Medical and Surgical Journal*, ceased to exist. The reversion was acquired by Messrs Sutherland and Knox from Messrs A. and C. Black in July 1855, and from that date the amalgamated *Edinburgh Medical and Surgical Journal* and the *Monthly Journal of Medical Science* has appeared from month to month as the *Edinburgh Medical Journal*. It was acquired by Messrs Oliver and Boyd, the present proprietors, from Messrs Sutherland and Knox, in August 1861.

From 1840 to 1848, when he was appointed to the chair of Institutes of Medicine, rendered vacant by the transference of Dr Allen Thomson to the chair of Anatomy in Glasgow, Dr Bennett appears to have lived a life of incessant mental activity.

A list of his writings I have given in the *British Medical Journal*, 9th October 1875. It is not therefore necessary to do more than refer to this list as a proof of his power of labour. His method of working was to take careful notes of all interesting cases and post-mortem appearances which came before him in the hospital. These notes, many volumes of which I have seen, were fully illustrated by numerous drawings made of microscopical preparations. He was in the habit of numbering each observation, and usually the drawing was neatly executed on the opposite page of the notebook. The number of recorded observations in one volume was over one thousand. It is interesting to know that this method of accurately recording and numbering each observation was also systematically followed by Michael Faraday.

On the 13th July 1848, Dr Bennett was unanimously elected to the chair of Institutes of Medicine in the University of Edinburgh. His chief opponent was Dr Martin Barry, who had already acquired an European reputation by his celebrated researches on the ovary. As Barry could not sign the "tests" then in force, he withdrew from the contest.

Professor Bennett was elected to the chair not merely on his merits as a physiologist, but because he was versed in pathology and therapeutics. It had always been the aim of former occupants of the chair—as, indeed, of all the medical chairs in the University—to give a practical bearing to their courses of instruction. At that time it was not considered to be the duty of the holder of the chair to teach physiology pure and simple as a branch of scientific inquiry, but to teach it by constant reference to the sciences of pathology and therapeutics. A candidate, therefore, required not merely to be an accomplished physiologist in the ordinary acceptation of the term, but likewise a physician; and not merely a physician, but also a pathologist. This view of his duty Dr Bennett firmly held during his occupancy of the chair. He taught the Institutes of Medicine; and his class, to the ordinary student who expected to earn his bread by practice in the medical art, was one of the most popular and practically useful in his curriculum. In his later years he viewed with regret the tendency to divorce physiology from its practical relations to the wants of the profession.

From this time Professor Bennett's energies were directed into two channels, and to form a true estimate of what the man was and did, we must remember both. As professor, he now became one of the clinical teachers of medicine in connexion with the University, and he also taught physiology from the professorial chair. Whilst his duties in the first position, and the demands made on his time as a consulting physician, prevented him from engaging in the special physiological researches which he probably would have done if he had had no clinical work, still the loss was more than compensated for by the great excellence he attained as a teacher of clinical medicine. In this department he was unsurpassed. His system of instruction has served as a model to many who are now performing that duty in our various teaching institutions. The leading idea which prevailed in his mind was to teach the student method. *Thus he was a teacher of the highest order.*

In the class-room, Professor Bennett delivered lectures which were characterized by elegance of language, correct intonation, and appropriate gesture. Each lecture with him, including all the illustrations, was a work of art, on which he spared no pains. Few were equal to him in this respect. His special talent of extempore speaking appeared to greatest advantage when, laying aside the manuscript, he proceeded to attack the positions of an adversary; and, as he was a man of strongly pronounced opinions of his own, this was by no means an uncommon occurrence.

Professor Bennett was the first in this country to recognise the necessity of teaching physiology in a practical way. Such a method of teaching physiology was what one would expect from his objective style of teaching any subject. He continued his course of histology from year to year, and to these were afterwards added courses on physiological chemistry and on physiological methods of research with the aid of those instruments of precision now employed by physiologists. This complete course of instruction was begun under his supervision by Dr Argyll Robertson, and was further developed by Professor Rutherford, the present occupant of the chair, and by the writer, who were successively his assistants.

In 1855, he became a candidate for the chair of the Practice of Physic in the University of Edinburgh. In his letter to the Patrons, he thus adroitly puts forward his claims:—"They" (his contributions to medical science and practice) "will also serve to demonstrate that I have ever considered a thorough knowledge of the science of medicine as the best introduction to its exercise as an art. In this respect, I have endeavoured to follow the procedure of my distinguished predecessors, Cullen, the two Gregorys, and of Alison; and now, like them, in seeking a transference from the Chair of the Theory to that of the Practice of Physic, I only pursue a course which is dignified by their example, and proved to have been conducive to the interests and reputation of the University." The other candidates were Dr Alexander Wood and Dr Laycock. After an exciting contest, traces of which may even now be detected, the chair was won by its present distinguished occupant, Professor Laycock. He regarded his defeat as the great disappointment of his life, and there is little doubt it tended to a certain extent to distort his views of men and things. He once said to me, in talking over the subject, "It was my highest ambition to win that chair from the third year of my professional studies."

Whilst engaged in teaching in the University and in the Infirmary, Professor Bennett found time for much literary work. He took advantage of his position in the Infirmary to obtain records of the cases which came under his care. These he published, with commentaries, from time to time, and ultimately they were collected to form his well-known work, "Clinical Lectures on the Principles and Practice of Medicine," which has passed through five editions in this country, six in the United States, and has been translated into French, Russian, and Hindoo.

During the latter years of his life, Dr Bennett suffered from a variety of ailments, which baffled the diagnostic skill of his numerous friends in the profession. He suffered from repeated attacks of bronchitis and laryngitis; from diabetes, alternating with periods of uric acid deposits and oxaluria; from muscular debility; from rheumatic pains, often local and intense in character; and, lastly, from symptoms of urinary calculus. For many years he struggled against bodily weakness. His courage carried him through work when others might have failed. I have seen him enter his retiring room weary and wan. Sitting down, he would express in a word or two how ill he felt, but the stamping of impatient students summoned him to work, and, entering the lecture-room, even in these circumstances, he lectured with all his wonted clearness and vivacity. At the end of the hour, the bow was unbent, and there was a period of exhaustion. He was reluctant to give up his work. At last he was obliged to admit that he was unable to go on. An account of his later symptoms, and of his last illness and death, may be seen in an interesting communication by Mr Cadge, of Norwich, in the *British Medical Journal* of 9th October 1875. He died on the tenth day after the removal of a stone by lithotomy. His fortitude continued to the end. The following quotation from a letter to me from Mr Cadge, dated 2d October, will now be read with melancholy interest:—" It has been my painful duty to watch by the deathbed of two of the most notable members of the Edinburgh Medical School—Liston and Bennett. There were curious points of comparison and contrast between them. Both were men of resolute will and great force of character, and both made a great name for themselves; but in what different ways! When Liston was dying (having dyspnœa from aneurismal pressure on the windpipe), it was proposed to call Brodie in. Liston loudly and vehemently objected, saying that 'Brodie would open his windpipe.' When Bennett was dying (having difficulty from spasm and aphthous covering of the throat), he entreated me or some one to 'stay by him during the night, and be prepared to open his windpipe'—adding that, in his hospital experience, he was conscious of having lost many cases from spasm of the glottis who might have been saved by timely tracheotomy. It is not in mortals to command success. I can only say I tried very hard to obtain it in his case, and I must say so did he. I do not think he gave up hope and expectation of recovery while he was able to think and act."

To the readers of this Journal, Dr Bennett's contributions to medical science and literature are so well known as not to require special enumeration. His advocacy of the use of cod-liver oil, his views on the rational treatment of phthisis, his critiques on the excessive and blind use of drugs, his system of treating acute inflammations, and his researches on leucocythæmia, were all characterized by the intense individuality of the man, and did not a little to change professional views and modes of treatment.

Professor Bennett was a man of clear and logical intellect. What he wanted in breadth of view he gained in penetrative power. Few could grasp more quickly the essentials of a subject, or perceive sooner or more accurately the real point at issue. *Method* was the prevailing quality of his mind which guided him as a teacher. In a word, his mental characteristics were more Celtic than Saxon. He resembled in all his work more one's idea of an able Frenchman than of an able German. Clear, vivacious, logical,—both in style and arrangement,—and having a faculty for broad generalization, he thus was keen, penetrative, and aggressive; but he wanted patience with details, the power of positive scientific expression, and the faculty of taking a wide view of all the facts bearing on what was immediately under discussion. He assumed an attitude of scepticism to all questions until fairly convinced. This probably accounts for his well-known expressions of doubts regarding the value of our present systems of therapeutics, and it is sad to think that his own case only served to confirm him in these opinions.

His tendency to indulge freely in critical and sarcastic remarks upon the works of others, did not make him a general favourite with some of his professional brethren, consequently he never attained the large practice as a consulting physician which was, from other considerations, his due. He was too much of a reformer, too pronounced and outspoken in his opinions; he had too much identified himself with certain lines of thought; and it must be confessed he did not possess that undefinable manner which inspires confidence both in patient and in practitioner alike. The same individual characteristics were displayed by him in his intercourse with his colleagues as a member of the Senatus Academicus of the University. Nevertheless, so great was their respect for and confidence in him, that, at a critical period in the progress of the Universities (Scotland) Bill in 1858, he was entrusted with the interests of the Senatus as their envoy to Parliament. In this position, he rendered essential service by his ability and indomitable energy.

There can be little doubt the one qualification wanting in Dr Bennett which, with his other great qualities, would have made him a leader among men, was the power of correctly appreciating the labours of others. Thus he did not always contrive to make every young man a friend and follower. I believe he was conscious of this defect, for he has often said to me that this power of making every man a friend was a chief characteristic of Edward Forbes which gave him personal influence and success.

By those who knew him best, Dr Bennett was much beloved. He shone in the social circle, where his love of music and power of brilliant conversation cast a radiance through the room. At his retreat on the shores of Loch Lomond, where he spent much time in boating, the man was seen in his true character as the kindly, considerate, cultivated gentleman. Many will remember in quiet moments the picturesque effect of the "Red Rovers" pulling about on that beautiful loch. The severest criticism of his own doings never caused any feelings of resentment, and if unintentionally he injured the feelings of others, no one was more ready to express regret. It is also remarkable that as a rule his attacks did not cause deep resentment in others. When the irritation of the moment disappeared, there was something about the man which excited mingled feelings, one of which was, in homely phrase, a conviction that the "bark was worse than the bite."

When I saw him last, I was struck by his quiet, subdued manner. No one could look on his wan face without feeling that the fight was nearly over. His intellect was apparently as clear and forcible as ever. He spoke very kindly of not a few, and the impression on the mind was that he was mellowing for "the land of light, and purity, and unbroken fellowship."

The individual peculiarities of Dr Bennett's character were so pronounced, and his relations to many men still alive were so often antagonistic, as to render it impossible at present to form or give expression to a true estimate of what he accomplished. By-and-by the historian of medical science may record that relatively he did more than most of his cotemporaries, and that absolutely he added not a little to the aggregate of truth. Of failings he had not a few. But he who has not, let him cast the first stone. I have felt it my duty, in this notice of my late master, to avoid exaggerated adulation—of which he, more than most men, had a great dislike—and to adhere to the maxim, *Nil nisi bonum*. It is well that time, that agent which rounds the contour of even the roughest rocks, and covers their scars with its gray lichens, also hides human faults and frailties, so that in the course of years, when men look back dispassionately on the lives of their predecessors, and all personal antagonisms have spent their force, these are forgotten, and only the virtues remain. So may it be to us all.

JOHN G. M'KENDRICK.

PETER MERE LATHAM, M.D.—We are unwilling to allow this distinguished physician and estimable man to pass away without a few words of respectful remembrance. Having reached the venerable age of 86, after a retirement of ten years from professional life, Dr Latham is probably almost a mythical person to not a few of the present generation,—his thoughtful, wise, and classical writings, nearly, we fear, out of print, being very unlike most of the current medical literature, with its cut-and-dry statements, and ready methods, so well fitted to facilitate the cramming process in students and young practitioners. Still, we promise those who can afford time to observe and think for themselves, that a careful perusal of his lectures on "Subjects connected with Clinical Medicine," and his two small volumes on "Diseases of the Heart," will show them that a prince and a great man in our profession died at Torquay on the 20th of July 1875.

We have much satisfaction in recommending to our readers a very successful sketch of Dr Latham by his friend and former pupil Dr West, in the *Medical Times and Gazette* for 7th August. Our own personal recollections are much in accordance with his, and, curiously enough, our opportunities of forming an estimate of his character commenced at the same period—1833-4, when Latham was in the prime and vigour of his manhood. Dr West tells us of his visits to St Bartholomew's at eight o'clock of the summer mornings, and his "fit audience though few," which could be got together at that early hour. We remember these mornings well; they are fresh and sunny; but, alas! many of his youthful followers have passed away, such as Roupell, Baly, and Jeaffreson. The clinical instruction was mainly given while the master stood with his back to the fireplace of the ward, with his friends gathered around him. There was no reserve, no assumption of infallibility, no dogmatism; opinions were freely canvassed; readiness to listen to difficulties evinced in the most encouraging manner. A stranger might think that the Doctor was a little consequential or pompous. He had, doubtless, an *ore rotundo* style of speaking; but it was pleasant, musical, and always worth hearing. We could recall occasions when this mannerism awakened a smile. He would say, after examining a patient's chest: "Let us try what local depletion will do in this case; what do you say to scatter a *whole lot* of leeches over the back? a *whole lot*,—shall we say six?" One of the house surgeons, who gladly availed himself of the clinique on these summer mornings, might, naturally enough, look comical. "Ah! you see how reckless these surgeons become in spilling blood."

In his occasional lectures of a more elaborate kind, which were not frequent, Dr Latham commanded the rapt attention of his audience. They were quite out of the common beat. We have a vivid remembrance of the first of the series referred to by Dr West; and how he delivered with admirable elocution and impressiveness, those lines of Cowper, in which he contrasts wisdom and knowledge:—

"Knowledge and wisdom, far from being one,
Have ofttimes no connexion. Knowledge dwells
In heads replete with thoughts of other men;
Wisdom in minds attentive to their own.
Knowledge, a rude unprofitable mass,
The mere materials with which wisdom builds,
Till smoothed, and squared, and fitted to its place,
Does but encumber whom it seems to enrich.
Knowledge is proud that he has learned so much,
Wisdom is humble, that he knows no more."

They described very accurately the well-known characteristics of

Latham's own mind, and were felt instinctively by his hearers to be happily chosen.

We all recognised in the then junior physician of St Bartholomew's the accomplished and high-toned Christian gentleman; and this feeling seems to have been the prevailing one among all who had intercourse with him during the subsequent years of his long life. Those old pupils and other medical friends who had occasion to write to him were sure of a painstaking and hearty answer containing *memorabilia* both in matter and in expression. Patients have remarked to us, that he not only inquired with evident interest into the facts and circumstances of their case, but noted them in a book at the time, so that when they returned after a lapse of years from India or Australia, he would compare their condition at once with the original record.

Dr Latham held the office of Physician to the Middlesex Hospital for some years, before his appointment to St Bartholomew's; and he laboured in the latter position for seventeen years, retiring from it in 1841, at the age of 52. He was Physician Extraordinary to the Queen, and in high estimation with all classes of the community.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

EDINBURGH, 15*th October* 1875.

SIR,—It seems I estimated Dr Littlejohn's knowledge of criminal jurisprudence too highly when I took it for granted that he was aware that a charge of murder included a charge of culpable homicide. I thought the fact notorious, but as he does not admit it, I now quote Alison's Criminal Law of Scotland in support of my statement (p. 18): "Every charge of murder is now held to include under it, though not expressed, an inferior charge of culpable homicide; and thus the determination of the nature of the crime, and of course the life of the prisoner, is left in the hands of the jury, under the direction of those legal principles which may be unfolded to them by the court."

Let me tell Dr Littlejohn further, that a prisoner charged with murder may plead "not guilty" to murder but "guilty" to culpable homicide; and that when on an indictment of murder he pleads simply "not guilty," he denies the charge both of murder, and what Alison calls the inferior charge of culpable homicide.

But Dr Littlejohn's peculiar ideas as to criminal law do not stop here; he says Dr Watson does not understand the meaning of the term "culpable homicide," and apparently founds this rash assertion on the assumption (for he gives no proof of his statement) that the prisoner's plea of "culpable homicide" necessarily implied a confession that he had *struck a blow* which killed his wife, and that "had Dr Watson's evidence had the weight he attaches to it, the prisoner would have been discharged as 'not guilty,' as an accidental death of the kind spoken of by Dr Watson involves no criminality." This view of matters hardly accords with another paragraph of Alison's (op. cit., p. 113): "8. It is culpable homicide if death ensues in the performance even of an act not in itself criminal, if due care of others is not taken in the performance of it." Thus, running about a bedroom, brandishing a sharp-pointed carving-knife, is not in itself a criminal act; but to do so in dangerous proximity to a staggering drunken woman, though without any intention of injuring her, introduces the element of want of due care of others in the performance of the act; and the brandisher of the knife, if the woman fall upon it and receive thereby a fatal wound, may very properly be held guilty of culpable homicide, while freed from the charge of murder, from which the accused could hardly escape if the fatal wound were proved to be the result of a *blow* struck by him.

As to the question of the prisoner's mental capacity, upon which Dr Littlejohn harps, it formed no element in the disposal of the case. Had the hand of justice been stayed on this account, he would not now be working out his sentence of fifteen years' penal servitude, but he would have been detained as a criminal lunatic during Her Majesty's pleasure. In support of his insanity theory, Dr Littlejohn refers obscurely to some certificate as to the prisoner's mental state, with which he appears to have been acquainted. If it existed, no use of such certificate was made by the defence, and certainly none such formed any part of the evidence which led the Advocate-Depute to accept the plea of culpable homicide. The prisoner I never saw till he entered the dock. What his mental condition was I cannot therefore say. His agent, however, believed him to be sane, as is shown by the following extract from a letter to me on this subject:—"As a good illustration of the prisoner's perfect sanity, I may mention that when I personally urged him to plead to culpable homicide, he declined to do so; and the ground of his declinature was that your evidence was of such importance that he would be freed of the charge. This came from him without my having said one word to him as to the effect your evidence might have."

Is it not too bad, Mr Editor, in Dr Littlejohn to stigmatize the prisoner who so entirely homologates his "original" views upon culpable homicide as "of a low type of intelligence, confused in speech, and a sot"?

While adverting parenthetically to inaccuracies connected with these irrelevant matters which Dr Littlejohn has imported into this discussion, I do not intend to be led away by him from the one and only point which was in issue between us at the outset of this correspondence. The question then was, What was the value of my testimony upon the issue of the case?—did it, or did it not, lead "the prosecutor for the Crown to withdraw the charge of murder, and only press that of culpable homicide"?

I have no wish, Sir, to obtrude my own opinion farther upon yourself or your readers in determining this question. Let me instead quote the opinion of the prisoner's agent:—"After your examination the Advocate-Depute intimated that he was prepared to accept of a plea of culpable homicide. The prisoner's advisers considered your evidence of such vast importance that it was with hesitation and after consultation with legal friends that they resolved to advise that such a plea should be tendered. I think that the man's life was saved by your evidence, and I shall remain of that opinion while I live."

But for Dr Littlejohn's apparent obtuseness, it would seem unnecessary to remark that the whole point of my evidence was that the injury was due to a *fall*, not to a *blow*. The responsibility of the prisoner for the consequences of the fall depended on the circumstances under which the fall occurred. The hesitation on the part of his legal advisers in regard to counselling a plea of culpable homicide, was evidently due to the consideration whether or not these circumstances, as unfolded at the trial, implied blame or did not imply blame on the part of the accused. My evidence was perfectly consistent with either alternative, and only negatived the charge that the injury was wilfully inflicted.—I am, Sir, yours obediently, PATRICK HERON WATSON.

To the Editor of the Edinburgh Medical Journal.

EDINBURGH, 14*th September* 1875.

SIR,—Perhaps you may find a corner in the Journal for the following Observations on Detached Retina.—Sincerely yours,

SOMMERVILLE OLIVER.

Even yet the two methods principally or only referred to of treating sub-retinal effusion (detached retina) surgically are the needle operations of Von Graefe and Mr Bowman, and simple tapping of the sclerotic and choroid at the seat of effusion.

Simple tapping, I understand, generally fails, because the opening made almost immediately closes, and so prevents the escape of the fluid, which quickly collects again.

The needle operation very frequently fails too, and why? In thinking over the matter, the latter operation seems to me to be attended with evils which, if not imaginary—and I think they are real—help to account for the little success which attends the operation, and render it desirable that some less injurious, if not also more successful, operation be tried.

It is known that when the vitreous is broken down by blood-clot, the mutilation of its structure very frequently leads to atrophy, diminished consistence or fluidity of vitreous, and to opaque "floating filaments" or "filmy opacities in it for which nothing can be done."

If, then, accidental disruption of the vitreous, and introduction of blood into it, be followed by such results, can we be certain that laceration of the retina with needles and the influx of sub-retinal effusion will not be followed by some of these mishaps? Or, that instead of doing the patient good the operation does him real harm? By the use of the needles we cannot always be sure that even a considerable portion of the effusion will find its way through the aperture made in the retina, or that vitreous, especially if unhealthy, will not pass outwards to between the retina and choroid. But even supposing that the sub-retinal fluid is free of blood and perfectly clear, and that the whole of it pass through the tear in the retina without any regurgitation of vitreous to the space between the choroid and retina; supposing, too, that no serious structural change is induced either in the retina or vitreous by the needles, or in the vitreous by what may, I think, be regarded as foreign matter—the sub-retinal effusion—(though the contrary is more likely to be true), yet, seeing that the process of absorption in the vitreous is slow, and that in all likelihood injury caused by the needles and ingress of sub-retinal effusion still further reduces absorptive power, if even a small portion of the effusion remains unabsorbed, will the refractive property of the eye not be greatly altered, and vision correspondingly impaired? Are vitreous and even the most favourable kind of sub-retinal effusion equal as regards refractive capability?

It will be said that the needle operation has occasionally been beneficial. Well, what of that? So also has the egress of sero-purulent matter through the lung from the pleural cavity in cases of empyema; but surely it does not follow that paracentesis is not preferable in the latter condition, or that some modification of tapping may not prove to be less injurious and more successful than the operation with needles for detachment of retina.

I may be wrong, but my impression is, that laceration of the retina and hyaloid with needles or otherwise, and the introduction of sub-retinal effusion into the vitreous (it being impossible to dip the needle or needles with certainty so deep and no deeper than is necessary to pass through the retina), there to undergo absorption, is little if at all more rational than in cases of empyema it would be to prefer the discharge of the fluid from the pleural cavity through the lung rather than its passage through a canula thrust between the ribs.

Mr Windsor recommends a suture to be employed for gaping wounds of sclerotic and cornea; Dr Williams (an American surgeon) stated that up to 1867 he had applied a suture to the corneal flap, after extraction of cataract, in upwards of 100 cases; and I know first-rate surgeons who do not hesitate to apply sutures in the treatment of certain wounds of the cornea, etc.

Mr Bader, too, relates (*Lancet*, 20th January 1872) eight cases in which he had removed a small portion of cornea for conicity of it. Now, does such practice not tend to indicate that at least the cornea and sclerotic—more likely the choroid *also* than the retina—may be somewhat roughly handled with comparatively little danger? Assuming that it does, there are then other operative measures than those previously mentioned, which possibly, perhaps probably, may prove to be advantageous for the treatment of sub-retinal effusion.

Seeing that a suture can be retained for days in the sclerotic and cornea without doing any material injury to the eye, it is not likely that the passage of a double horse-hair, by means of a curved needle, through the sclerotic and choroid over the localized effusion, would cause excessive irritation; and if it did not, by tying together the ends of the hair and moving it occasionally in the wounds, as is done with a seton, the sub-retinal effusion would be allowed to drain away, and its speedy collection again prevented; for the wounds made in the sclerotic and choroid by the entrance and exit of the flat surgeon's needle would not be nearly filled by the horse-hair, consequently the retina and choroid would be allowed to rejoin and to remain in contact with each other. The drainage-hair, if I may so call it, might act more efficiently if twisted as well as doubled, and, of course, it would be removed so soon as ophthalmoscopic examination showed that the desired object had been attained.

Remembering, too, that simple tapping fails because the fluid, which may soon collect again, cannot escape, and therefore again becomes a cause of separation of the retina from the choroid, would there be any serious objection to removing a minute disc of sclerotic and choroid at a spot corresponding to the sub-retinal effusion? If not, there would be greater prospect of success than by simple tapping, for the effusion would be allowed to drain away *for a time*, and effusion could not immediately begin to gather again, hence, if the retina regained its normal position, there would, I believe, be greater likelihood of it remaining there. Suction could be employed after making the minute aperture, but I fear it would be injurious rather than beneficial, for sudden diminution of intraocular pressure in the case of an unhealthy eye is liable to be followed by intraocular hæmorrhage; and vitreous, if unhealthy, might be drawn, as well as effusion, by the process. After making the orifice, the lids should be closed, and a compress gently applied. The risk of internal hæmorrhages would thus be lessened, and the slight pressure on the globe might assist the escape of the extravasated sub-retinal fluid through the opening.

An instrument of the shape of the one employed for making holes in the ground for golf-balls, but of miniature size, would answer our purpose. But whatever instrument be preferred for the formation of a minute aperature in the sclerotic and choroid, it should be provided with a broad shoulder or stop—movable if desired—to prevent the instrument penetrating so deep as the detached retina.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Demonstrations of Antiseptic Surgery, before Members of the British Medical Association, in the Operating Theatre of the Royal Infirmary, 4th and 5th August* 1875. By JOSEPH LISTER, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.

DEMONSTRATION II.—PART I.

GENTLEMEN,—The first patient I wish to show you to-day presents an illustration of the effects of ligature of an artery in its continuity by means of prepared catgut applied antiseptically. The opportunity of showing him to you, I owe to my colleague Mr Annandale, under whose care he has been.

The case was one of aneurism of the upper part of the femoral artery; but as it would not be right for me to anticipate Mr Annandale in the publication of its details, I shall merely mention to you the main point that I wish to illustrate. The external iliac artery was tied under spray, the operation (at which I happened to be present) being performed with strict regard to antiseptic management, while the important matter of the use of drainage-tubes was not neglected. The operation was performed on the 23d of June, and the wound was absolutely skin-whole in fifteen days, without the occurrence of any suppuration at all. [Mr Furneaux Jordan, of Birmingham, was now kind enough to come forward and examine the patient, verifying the fact that there was no pulsation in the artery at the groin. Mr Lister then proceeded.]

The immediate object of the operation has therefore been attained —the vessel has been permanently obstructed at the part tied; and this has been done without the occurrence of any suppuration, and by a mode which, I think, we may venture to say, involves no danger whatever, provided it be properly carried out. The two great risks of an operation like this are, of course, secondary hæmorrhage, and diffuse suppuration in the cellular tissue around the peritoneum; and both of these are securely guarded against by proceeding in this manner. I believe myself that this is a pretty perfect method of obstructing a vessel in its continuity; I do not see that we can wish to have it improved upon. I therefore regret extremely to find that it is still distrusted in various quarters, even by those who use catgut for the ligature of arteries in ordinary wounds. They do not trust it for tying arterial trunks in their continuity. I regret this the more, because I feel it is to a certain extent my own fault. When I first published on the subject, I was not aware myself of the proper mode of preparing the catgut. I had prepared it right, but by a mere accident. I described the mode of preparation in *The Lancet*,[1] as steeping the catgut in a mixture of carbolic acid and oil. It so happened that the carbolic acid which I used was liquid carbolic acid, so called—that is to say, crystallized carbolic acid, liquefied by the addition of water. Now, this water makes all the difference in the world. When oil is added to this liquid carbolic acid, a considerable portion of the water is deposited in the form of very fine particles, which are suspended in the oil; and it is this mixture—this emulsion if we may so call it—of oil and water which causes the remarkable physical change in the animal tissue of which catgut is composed, that alone renders it fit for our objects. The tissue of the catgut in the ordinary condition is utterly unfit for surgical purposes; as slippery, when moistened, as a piece of intestine in the dead-house—when you tie it in a knot, it slips with the utmost ease. But after it has been steeping in the emulsion of carbolic acid, water, and oil, for a certain length of time, it undergoes a physical change, which I am quite at a loss to explain. As the tissue lies steeping in this mixture, the first effect is to moisten it somewhat; then, as time passes, after about a week, you find that, instead of becoming softer, more swollen and more opaque, as you would expect, it is, on the contrary, growing less opaque and beginning to shrink; and in about three months, though still softer than dry catgut, it is comparatively firm, and quite transparent. Now, if you take a fresh piece of dry catgut and put it into this same sample of the preparing liquid, you will find the second piece become in the first instance partially moistened like the first; a fact which renders it inexplicable to me, why the former piece should have undergone what looks like a partial drying. But whatever the explanation, the all-important fact is this, that after the catgut has been thus partially dried, so to speak, in this moist liquid, it is now no longer liable to be made slippery by being steeped in water or the animal juices at the temperature of the body: it is indeed rendered softer and somewhat opalescent, but a reef-knot tied upon it holds better than one on waxed silk. I repeat, when I first published on the subject, I was not aware of this circumstance. I had got the catgut properly prepared, but it was by mere accident that the water which is essential to the process was present in the mixture that I used; and, ignorant of its importance, I omitted to mention it in the description which I gave of the mode of preparation; whereas mere steeping of catgut in a solution of dry carbolic acid in oil, though it of course makes it antiseptic, leaves it perfectly unfit for use as regards its physical properties. When I found out my mistake, I sought to remedy it by insisting, in subsequent publications, upon the importance of the presence of the water in the preparation of the catgut; but I never stated, as I now do, that I had originally described an untrustworthy method. I very much regret this bad result of what turns out to have been premature publication; and I earnestly hope that this public confession of my mistake will have the effect of preventing any further bad consequences from it.

---

[1] See *The Lancet*, 3d April 1869.

The catgut does not spoil by being kept a long time in the preparing fluid of oil, carbolic acid, and water. Here is some that was put in six years ago last month. It is now just as good as ever. Thin as it is, I cannot break it with any reasonable force. If you were going to tie the external iliac, you would use a thicker piece than this; partly, in order that it may stand any strain to which it could be reasonably subjected in the act of ligature, and partly that, a longer time being required for the absorption of the more substantial material, it may remain longer as a mechanical barrier to the force of the circulation.

[In this point of view there is another important advantage possessed by catgut properly prepared, viz., that it is much less rapidly absorbed than that which has been for a shorter time in the preparing liquid.

I would strongly advise any surgeon, who proposes to ligature an artery in its continuity with catgut, to test for himself the quality of the article; since those who sell it are tempted, if their stock of old catgut has run out, to supply that which has not been long enough prepared. In order to ascertain if it is trustworthy, a piece should be steeped for an hour in water about the temperature of the body, as in a vessel at a suitable distance from the fire. If then a reef-knot tied upon it does not slip, it is fit for use. And it will be well for the surgeon to keep a stock of the material for special purposes like these, testing it in the first instance in the manner described, after which he will be sure that, being still kept in the preparing liquid, it will be at least equally good at any subsequent period. If these points are attended to, there will be no further complaints about untrustworthiness of the catgut.[1]]

---

[1] When it is requisite that the cord should be able to withstand all the strain to which the human hands can subject it, as, for example, if it be used for the pedicle in ovariotomy (in which case, I may remark, the pedicle would have to be well subdivided), the material must be of specially strong quality to begin with. Catgut consists of the peritoneum, together with muscular fibres, of the small intestine of the sheep; and the common kinds are either the entire tube of the gut, or longitudinal strips (according to the thickness required) simply twisted, dried, and subjected to sulphurous acid

I have now, Gentlemen, to bring before you two cases illustrating a somewhat interesting example of the usefulness of the catgut, namely, for the arrest of hæmorrhage from a wounded vein.

Nineteen days ago I removed this patient's mamma, and at the same time cleared out the entire contents of the axilla, thus taking away, along with the fat, a number of scirrhous lymphatic glands, one of which lay immediately beneath the clavicle. In performing the operation, you may cut freely enough on the side towards the chest; but towards the axillary vessels, the glands, with the loose tissue about them, should be detached with the fingers, and any considerable-sized venous branch tied before it is cut.

[If the incision is carried parallel to the margin of the pectoralis major to near its insertion into the humerus, and the integument is raised a little from the edge of the muscle, and also freely dissected backwards to the fold of the latissimus dorsi, there will generally be obtained satisfactory access for dealing in this manner with glands situated even at the apex of the axilla; the pectoralis being drawn well forward, when necessary, by means of a copper spatula. If, however, the space thus obtained is not sufficient, whether for the removal of glands in that situation, or for the arrest of hæmorrhage there, the skin should be at once dissected up from the pectoralis, and the muscle divided transversely from the margin towards the collar-bone to any degree that may be requisite. When I first adopted, seven years ago, the practice of systematically clearing out the contents of the axilla, I divided both pectoral muscles in all cases (the pectoralis major only partially), and though I have since found that this is not generally necessary, yet the experience of the earlier cases was valuable, by showing that the division of the muscles, though it appears a severe procedure, does not seriously complicate the operation, either as regards its performance or its ultimate results. The arm being kept bound to the side, the divided muscles unite quickly, and the patient gives, in time, the best evidence that their functions are not materially impaired by being able "to do her back hair."]

In the present case, one of the glands was so very close to the vein

vapour, or other chemical agents. But for special purposes, as, for example, the manufacture of fiddle-strings, the cord is made of several narrow strips twisted together, and is then very much stronger. Such catgut can be obtained of the musical-instrument-makers, but is of course then unprepared in our sense, unfit for surgical purposes, and must be kept in the preparing liquid for a due length of time. For the sake of those who wish to prepare catgut for themselves, I may repeat here the proportions which I have found the best for the purpose. Add one measure of water to ten parts by weight of crystallized carbolic acid, mix and add one measure of the mixture to five measures of olive-oil, in a suitable jar or wide-mouthed bottle; then at once introduce the catgut, the hanks being opened up to allow access of the liquid to them; cover, and set aside in a cool place. Some water is gradually precipitated to the bottom of the vessel, and it is necessary to prevent any part of the gut from coming in contact with this precipitated water. A simple way of ensuring this is to put in as many marbles as will cover the bottom of the vessel.

that, as I was endeavouring with the fingers to detach it, a venous branch broke at its origin from the axillary, the result being an aperture in the venous trunk about an eighth of an inch in diameter. I seized the opening in the vein with catch-forceps, and put a catgut ligature upon it, but the thin slippery tissue of the venous coat slipped from the grasp of the knot. I made a second similar attempt, and again the same thing occurred. What was now to be done? Without antiseptic treatment I should have been a good deal at a loss. To have obstructed the main vein of the limb by tying it across like an artery, would have been most undesirable; and to have introduced a pad of lint into the wound, to compress the orifice, would have been very unsatisfactory practice.

I did, however, what I had long contemplated doing, if such a circumstance should arise. All flow of blood being temporarily stopped by pressure on the vein to the distal side, I threaded a fine sewing-needle with the finest catgut, and passed it through the coats of the vessel at opposite points of the wound, and at a short distance from its edges, and then, cutting off the needle so as to leave two threads in its track, tied one thread round each half of the wound. The purchase thus secured upon the venous texture prevented the ligature from slipping, and the bleeding was permanently arrested. The healing of the wound has proceeded undisturbed, and cicatrization is, you observe, already almost complete. Here the small part that remains unhealed being entirely superficial, it is no longer needful to use the spray in changing the dressing.

Another reason that has made me bring this patient before you is, that you may see how the drainage of the axilla was provided for, and this I believe to be a matter of great importance. In all previous cases of this kind, when it was necessary to clear out the axilla, my practice had been to extend the transverse incision made for removal of the mamma, and introduce a drainage-tube at the outer angle of the wound. But if this is done, it will sometimes happen, if the patient be stout, that in spite of the presence of a substantial pad of folded gauze between the arm and the chest, the skin of the fat side and that of the fat arm will come in contact with each other, and the drainage-tube will become obstructed, leading to tension in the axilla, and, it may be, inflammatory suppuration. But here, for the first time, I have got over this difficulty completely, by making a special perforation for the drainage-tube so far back as to be out of the way of the pressure of the arm. Here, you observe, is the place where the tube was inserted, viz., in the angle between the arm (as it lies against the side) and the back. Thus, while you avoid a needlessly long incision, you have the most complete possible drainage, and the result, as you see here, has been very rapid healing. We all know that wounds after removal of the mamma may heal quickly, and sometimes without suppuration, without any antiseptic treatment at all. But this, I suspect, could not have been an instance of that kind. A large amount of skin implicated in the disease had been removed, so that, notwithstanding the use of button-stitches,[1] tension was great; and if we add to this the presence of the large hollow wound in the axilla, it is not at all likely that under any treatment not antiseptic, healing would have occurred without suppuration, as it has done here.

The other patient whom I wish you to see, as an illustration of the arrest of venous hæmorrhage by means of catgut, will now be brought in. She had long suffered from varicose veins, which you see conspicuous in the leg, even in the recumbent position in which she is; and I was asked to see her on account of hæmorrhage that had occurred from a tumour about as big as an orange, which had formed in the ham, the most prominent part being formed of blood-clot. It was evidently composed of a mass of greatly distended veins, one of which had given way by ulceration. The case seemed urgently to demand interference, and I resolved to remove the mass—a thing which I should have hesitated in doing without antiseptic measures, as I felt sure that I should open into large varicose veins. Such proved to be the case, as you see from this preparation of the part removed. On section, the most prominent portion is shown to be composed of coagulum, while the deeper surface presents numerous large vessels. They have shrunk a good deal since they were removed, but when the operation was performed, they were almost as thick as my little finger. And now we have to speak of how the veins, which lay open in the wound, were dealt with. Some of them presented transverse orifices, but others had been divided more or less longitudinally. I tried, by detaching the veins from the surrounding parts, and clipping away some portions, to get the vesssels to present themselves in transverse section, so that I might tie them with catgut in the ordinary way; and in most instances this was satisfactorily accomplished. But there was one large vein presenting a longitudinal slit about five-eighths of an inch in length, so connected that I could not readily deal with it as with the others. I therefore adopted a practice which will, I believe, prove a valuable addition to our resources, in wounds of large venous trunks. Using a very fine sewing-needle and finest catgut as before, I sewed the two lips of the wound together by the continuous or glover's stitch; leaving the calibre of the vessel intact. Now, I do not think any man would have been justified in doing that with ordinary silk or cotton without antiseptic measures. To do so would have been to run imminent risk of suppurative phlebitis and pyæmia. But by proceeding antiseptically we incurred, as I believed, no such danger, and the result is, as you see, so far satisfactory. It is now three days since the wound was dressed last, and five days after the operation. The discharge of the three days has caused, you observe, a merely trifling serous stain upon the gauze. And there is entire absence of any inflammatory disturbance. In performing the operation, the skin having been very thoroughly washed with 1 to 20 carbolic-acid lotion, I took care to cut wide of the tumour, so as to keep clear of the putrefactive material on the exposed clot; but though a considerable portion of skin was thus taken away, I was able, by dissecting up the integument a little at each side, to free it so that its edges could be brought together closely by suture, except at the spot selected for the insertion of a small drainage-tube. You see the blood-clot still lying at this spot, while the stitches retain their places without any suppuration about them. [Healing afterwards proceeded to its completion, without gaping of the wound or any other untoward circumstance. It should be mentioned, that bloodlessness of the operation was provided for by encircling the thigh with a constricting elastic band, after emptying the limb of its blood by keeping it elevated for a few minutes in the vertical position.]

---

[1] See *The Lancet*, 5th June 1875.

ARTICLE II.—*On the Pathology and Operative Treatment of "Hip" Disease.* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.

(*Continued from page* 418.)

BEFORE recording my own cases of excision for the relief of hip disease, I propose to consider some of the opinions and experiences of other surgeons in connexion with this operation.

The removal of the head of the femur for the relief of hip-joint disease, was first performed in this country by Mr A. White of London, and afterwards by Sir B. Brodie, and Mr Hewson of Dublin, but the credit of successfully practising and advocating this operation in later times is undoubtedly due to Sir William Fergusson, who, in the Medico-Chirurgical Transactions for 1845, published an interesting account of his first case. Since then, the operation has been more or less favourably considered by different surgeons, but it cannot be said that there is a unanimous feeling in its favour.

Within the last few years, many cases and several statistics of the operation have been published. The largest number of cases has been collected by Hodge and Good, and the statistics of both give a mortality of about one half of the whole cases operated upon. Hodge's tables, however, show that the mortality is much greater in adults than in children.

Holmes[1] records 19 cases in children, of which 6 died from direct effects of the operation; 1 died after operation from previous effects of the disease; 1 died of independent disease some time after recovery from amputation; 2 recovered from the operation, but not from the disease, and died a long while after; 2 were little, if at all, benefited; 1, twice excised, was doubtful; 3 had useful limbs, but with sinuses; 3 recovered completely.

---

[1] System of Surgery (2d edition).

Bauer[1] records 17 cases of partial resection of the hip-joint, of which 9 recovered, and 2 were still under treatment.

The excision of the entire acetabulum as well as the head of the femur was first practised and strongly advocated by Mr Hancock, and has since been successfully performed by Erichsen and others. Mr Hancock[2] in his well-known paper refers to the importance of giving exit to pelvic abscesses connected with hip disease, by making a free opening and excising the head of the femur and acetabulum if necessary. He objects to the principle that excision should only be performed (1st) in the last stage of the disease; (2d) when the head of the bone is dislocated; (3d) when the acetabulum is free from disease; (4th) when the amount of pelvic disease is but trivial. He says further, "In deciding upon this operation, we should be guided solely by the condition of the patient, and not by any arbitrary stages of disease."

Let me now quote some of the more modern authorities on the question of excision in hip-joint disease.

Barwell[3] writes, "In the present high—perhaps somewhat too high—value which is accorded to the operation of excision, it is to be feared that patients may be unnecessarily subjected to that treatment, rather than that the operation will be too much dreaded. We should recommend that when a case, even if external abscess be already formed, the efficiency of extension be fully tried; if in a night or two the starting pains greatly diminish and subsequently cease, the proposal of excision should be postponed until general symptoms, the formation or increase of pelvic abscess, may warrant return to such consideration." He also says, "But it may be here remarked, that this operation is in my belief usually postponed too long, and that it should not be so much regarded as an ultimate resource to be employed only because amputation is worse than useless; it should rather be viewed as a means whereby we may yet procure for our patient a valuable limb."

Dr Fock—quoted by the same author—writes, "The proper moment for the operation has, according to our view, arrived as soon as caries of the joint has been diagnosed with certainty."

Bauer[4] says, "Though I am not a great admirer of resection of the hip-joint, nevertheless, I honestly believe that its performance, when warranted by the anatomical changes of the joint, bids as fair a chance of success as the resection of any other joint."

Dr Good[5] says, "MM. Verneuil and Le Fort, the two surgeons who more than all others of Paris fancied resection, quite share our opinion as to the fatality of these hip-joint operations, and both hold that our greatest fault lies in delay, and that heretofore the cases have been operated on only 'in extremis.'"

---

[1] Loc. cit.

[2] Lancet, 25th April 1857.

[3] Loc. cit., page 442.

[4] Loc. cit., page 67.

[5] Medical Times and Gazette, 3d April 1869.

Sayre[1] writes, "If, however, notwithstanding your treatment, the disease progresses, suppuration increases, the joint becoming more and more impaired, showing a case of progressive caries, we then have no remedy except resection." He also—after referring to nature's method of curing these cases—writes, "And in the most favourable cases healed by kind nature in this way, they have been left with permanent deformity, and with a very much less useful limb than those which have been cured by resection. I have now performed this operation over fifty times, and can therefore speak with positive assurance upon the subject."

Bryant[2] writes, "So long as suppuration or other disorganizing change in the joint has not appeared, a good hope exists of a recovery with a useful joint; and as long as the disease is in the synovial membrane, the probability of a recovery with a valuable articulation is great. When disease originates in the epiphysis—that is, the head of the bone—or in the epiphyseal connective cartilage, the prospects of a recovery with movement are slight, unless the mischief is checked in its early stage." At page 855, the same author remarks, "When should excision of the hip be performed? And, first, when should it *not* be performed? It should certainly never be performed in cases in which suppuration or disorganization of the joint has not taken place, for as long as this condition is kept off by surgical as well as medical skill, a sound hope exists that a cure of the disease, although by anchylosis, may be secured. The cases I have already quoted on previous occasions illustrate this fact. It should not be performed when all evidence tends to show that the bones entering into the formation of the joint are not extensively involved, or necrotic wholly or in part, and when the general condition of the patient under proper treatment is fairly maintained. It should not be entertained for disorganization of the hip-joint as a result of synovial disease, unless it is clear that the general health of the patient is gradually yielding to the disease. It should never be performed for acute suppurative disease. On the other hand, it should always be entertained when it is clear that extensive bone mischief exists or partial necrosis, for it is tolerably certain that under such circumstances a cure by natural processes is highly improbable. It should only be entertained when the general health of the patient is clearly giving way under the influence of local disease, whether that disease be in the bones or synovial membranes, or both."

Holmes[3] writes, "I think, however, that the operation should always be recommended when along with caries there is progressive deterioration of the general condition, and at the same time an immunity from visceral mischief." At page 468 the same author writes, "Should the operation be performed in cases where there is no open abscess? This is rather a difficult question. I believe the prospect of recovery is greater when the abscess is opened and the head of the femur is removed in the same operation; and if the symptoms are acute, and examination of the joint under chloroform shows that the disease of the bones is already extensive, this will perhaps be the best course to pursue." At page 458, he also writes, "The cases which I have operated upon successfully have uniformly shown that after excision the limb is not more, I think not so much, shortened as it commonly is after spontaneous cure, while it enjoys a freedom of motion never attained after recovery by the natural process, and is at the same time quite as firm and quite as capable of sustaining the weight of the body."

---

[1] Loc. cit., page 19.

[2] Loc. cit., page 844.

[3] Diseases of Children (2d edition), page 463.

Most of the authors quoted refer to the fact that limited and superficial disease of the acetabulum does not interfere with the good result of excision of the head of the femur, this cavity recovering readily when the diseased portion of the femur is removed, and my experience of excision of the head of the femur confirms this fact, as will be seen by a study of the notes of the cases presently to be recorded.

I could quote other authorities on excision in hip-joint disease, but I have chosen those whom I consider good representatives of the liberal views of modern surgery in connexion with this subject.

The opinions of the authors quoted may be generally summarized as follows:—

(1.) That when suppuration and disorganization of the textures of the hip-joint continue unrelieved by ordinary treatment, excision of the head of the femur is a proper and justifiable proceeding, if the patient's health is in a fair condition.

(2.) That the operation is more successful in children than in adults.

(3.) That in successful cases of the operation, the results, as regards the usefulness of the limb and joint, are superior to those which follow a natural cure.

(4.) That superficial or limited acetabular disease does not interfere with the performance and good result of excision of the head of the femur.

(5.) That even when the acetabulum is much involved, or pelvic suppuration exists, it is important to afford a free escape to the pus by the removal of the head, neck, and great trochanter of the femur.

(6.) That when the acetabulum is extensively diseased, it, together with the head and neck of the femur, should be removed, if the patient's condition admits of the operation.

(7.) That it has not yet been accurately decided what is the earliest stage of the disease in which the operation is justifiable, although most agree that hitherto the operation has on the whole been delayed too long.

Amputation at the hip-joint has occasionally been performed on account of hip disease, or after unsuccessful excision, and cases have been reported by Holmes, Lee, and others. This operation can, however, be justifiable only in cases where excision has failed, and the removal of the limb would seem to give a chance of saving life, or in cases where the femur is extensively diseased, or the soft textures of the thigh much destroyed by ulceration, sloughing, or the results of suppuration.

I will now record brief notes of the cases, twenty-two in number, in which I have excised the head of the femur for the cure of hip disease.

Case 1.—J. F., æt. 17, had suffered from aggravated symptoms of hip disease for six months, after a slight injury to the joint. Rest and other treatment having failed to relieve the incessant pain and constitutional irritation, and symptoms of suppuration of the joint having appeared, an incision was made into the articulation on the 28th of September 1869. The introduction of the finger having determined that the cartilage of the head of the femur was entirely destroyed and the bone carious, this portion of bone, together with the neck and trochanter major, was sawn off. The acetabulum was only slightly affected. His progress after the operation was slow, but satisfactory, an attack of erysipelas having delayed his recovery, and he was able to move about on crutches at the end of six months. In May 1870, the wound reopened, and discharged some fetid pus, and after this the patient again improved, and was able to go out; but, in a few weeks, symptoms of liver disease appeared, with dysenteric diarrhœa, and from the effects of this he gradually sank, and died on the 29th of August 1870, about eleven months after the operation. The wound was small, and still discharging slightly at the time of his death. The limb was nearly three inches short, but promised to be quite useful had the patient lived. At the post-mortem, the liver was found to be greatly enlarged, and both it and the intestines were much affected with waxy degeneration. The condition of the joint is represented in Figs. 20 and 21, which are taken from a front view and section of the articulation. The femur, where sawn through below the trochanter, had become rounded off. The cavity

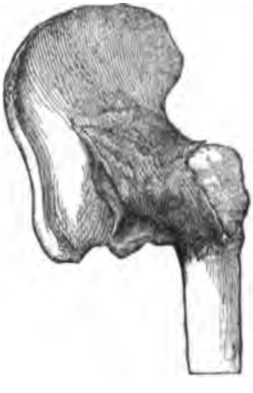


Fig. 20.

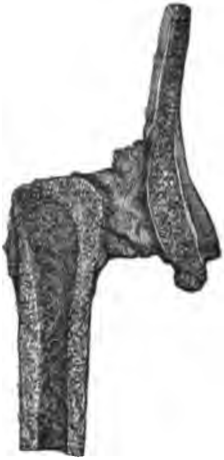


Fig. 21.

of the acetabulum had almost disappeared, and the rounded femur was attached to the dorsum of the ilium by ligamentous and fibrous tissue, and by the surrounding muscles, which in the sectional view have all been dissected off. There was free movement in the new joint. The wound communicated with two sinuses, which passed down to some small portions of necrosed bone in the situation of the original acetabulum. With the exception of these small pieces of diseased bone, there was no trace of osseous disease.

Case 2.—F. G., æt. 19, had suffered from disease of the hip for nearly three years. There were numerous sinuses passing down to the head of the femur, which could be felt softened and diseased. On the 25th of March 1870, I enlarged one of the sinuses, and proceeded to remove the diseased bone; but this was found to be a matter of difficulty, the bone being so soft that it had to be taken away in pieces. In this way, the head, neck, and great trochanter were removed. This case was one of those referred to in page 414, in which the outer table of the bone was thin, and the cancellated texture principally composed of fatty matter. The wound did not completely heal after this operation, so it was again enlarged on the 17th of May, and two inches of the shaft of the femur removed. The shaft of the bone where divided was, however, diseased in the same way. He improved after this, and was able to go about on crutches on the 5th of July. On the 24th September, he was dismissed with a sinus still discharging, but able to go about a little. I afterwards heard that this patient died at his home some six months after his dismissal.

Case 3.—Master I., æt. 6, had suffered from signs of hip disease for twelve months, and had been treated by the application of the long splint and extension. When seen at the end of March 1870, there was a large abscess (unopened) in the corresponding groin, and all the signs of suppuration of the joint. On the 20th of April, an exploratory incision was made immediately above the great trochanter, and the introduction of the finger having determined that the cartilage of the head of the femur was destroyed, and this bone in a carious condition, the head, neck, and great trochanter were sawn off. The acetabulum was not interfered with, being only slightly involved. The progress of the patient was slow, owing to the formation of several sinuses in the groin; but a gradual and complete recovery took place, and up to this date he remains perfectly well. He is now able to walk on the limb, and to move the joint freely. Figs. 22 and 23 are taken from photographs, which illustrate the present condition of the limb and its amount of mobility. The limb is fully three inches shorter than the other.

Case 4.—D. P., æt. 16, admitted into the Infirmary in October 1871, with symptoms of hip disease, which had followed an injury of the joint six weeks before. Six weeks of rest and other treatment failed to relieve the symptoms, and as signs of suppuration appeared, an incision was made into the joint, and the head of the femur being found to be diseased, was removed, together with the neck and a portion of the great trochanter. The patient was much relieved by the operation, but his progress was slow. He gradually, however, regained

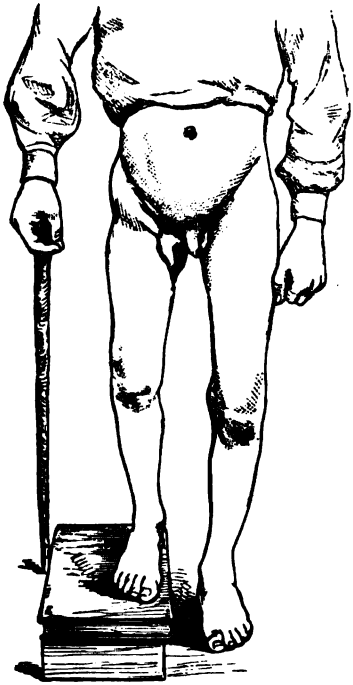


Fig. 22.

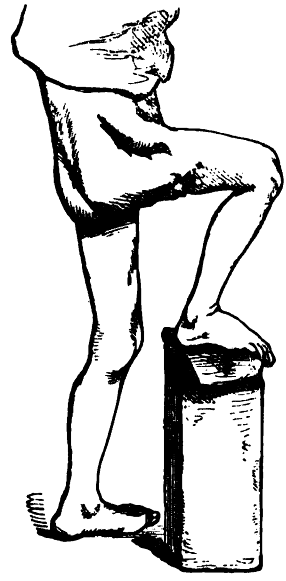


Fig. 23.

strength, and although much emaciated, he was, at the end of nine months after the operation, able to go to the Convalescent Hospital in the country. At this time, there was one small sinus open; but the joint and limb were useful and movable. When at the Convalescent Hospital, he was suddenly seized with symptoms of tubercular meningitis, and died in three days. The date of his death was September 1872, about ten months after the operation An examination of the joint after death showed an excellent result as regards the formation of a new articulation. The upper end of the femur was nicely rounded off and quite healthy, and rested against the upper wall and edge of the acetabulum. The acetabulum was enlarged and partially filled up by fibrous tissue and the remains of the capsular ligament, which united the rounded femur to this cavity. The acetabulum was quite healthy, except that two small portions of necrosed bone lay in little cavities, one in its floor, and the other in its inner lip. Fig. 24 is taken from a photograph of this new joint.

Case 5.—G. B., æt. 11, was admitted into the Infirmary in November 1871, on account of hip disease of two years' standing, which had followed an injury of the joint. On admission, all the signs of advanced disease with a large abscess in the groin were present. On the 1st December 1871, the head of the femur was excised by sawing through the centre of the neck. The patient's progress was most satisfactory. Two months after the operation, the wound was almost healed, and the joint could be moved without pain, but not very freely, in all directions. One month after this, his progress still appeared to be most favourable; but very shortly, symptoms of dropsy ensued, and it became evident that his liver and other internal organs were affected. He gradually became weaker, and died on the 11th March 1872. The post-mortem examination disclosed tubercular disease of the liver, kidneys, spleen, intestines, and one lung. The wound was quite superficial, and the condition of the joint is illustrated in Figs. 25 and 26, which are taken from a front and sectional view of the articulation. There was no trace of any diseased bone in connexion with the joint. The neck of the femur where sawn through was rounded off and articulated with the upper wall of the acetabulum. The acetabulum was enlarged, and its cavity shallowed, and the two bones were connected by the remains of the capsular ligament, which was wonderfully perfect, and by some fibrous bands and portions of muscular tissue.

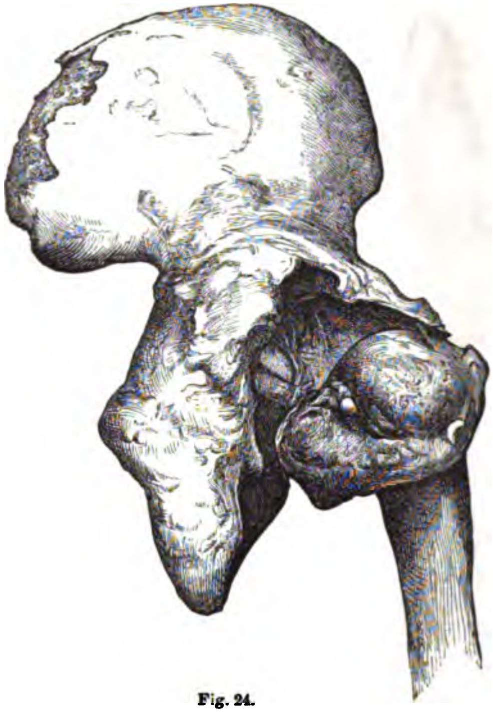


Fig. 24.

Case 6.—G. J., æt. 6. The disease had existed one year, and had been carefully treated without effect by rest and extension for several months. As there was fluctuation to be felt over the joint, an exploratory incision was made on the 31st of January 1872, with the result of finding the head of the femur diseased, and the acetabulum little involved. The head of the femur was therefore excised, and a perfect recovery took place, the patient leaving the hospital on the 20th of June with a useful limb and perfectly movable joint. The limb was about two inches short, and the patient could stand upon it without any support. Figs. 27 and 28 are from photographs taken two years after the operation, and well illustrate the good result obtained in this case.

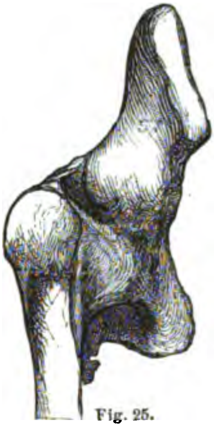


Fig. 25.

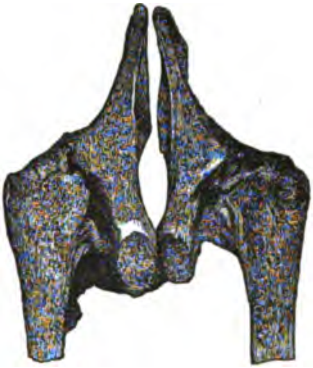


Fig. 26

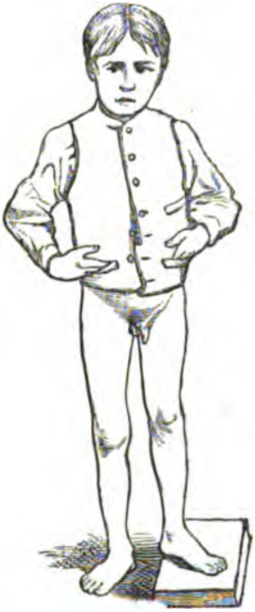


Fig. 27.

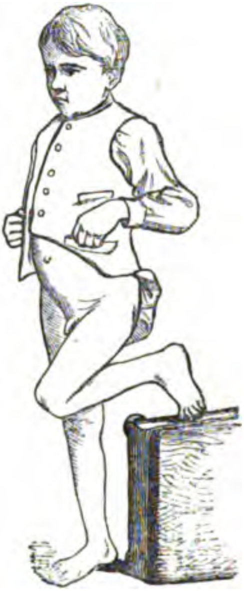


Fig 28.

(*To be continued.*)

ARTICLE III.—*On Inflammation.* By G. THIN, M.D., London.

(*Continued from page* 409.)

CHAPTER II.

THE appearances seen in an inflamed cornea have been so much discussed of late years, that it might seem natural that I should begin by reviewing the controversy. I believe, however, that the majority of my readers will best understand what I have to say on the disputed points if I adopt the more systematic course of discussing in succession the changes which take place in the different elements which I have shown to exist in the cornea.

The phenomena of inflammation as they are seen in an injured cornea follow a certain sequence, modified by the extent and nature of the injury, and by the species of animal which is the subject of it. The rapidity with which the phenomena develop is subject to still greater variations. I attach therefore little importance to the exact number of hours or days after which they have been observed in any given case. The earliest and latest phenomena of inflammation may often be observed in one and the same cornea.

I have shown in the preceding chapter that the cornea substance is divided into tracts by clefts. These clefts become much more prominent in the inflamed cornea. They can frequently be well seen in the cornea of a frog after twelve hours' inflammation, produced by touching the surface with a fine point of nitrate of silver. The methods which I have employed for their demonstration are to seal the excised cornea in blood serum, or simply to treat it by gold solution in the ordinary way.

When the inflammation has been thus limited, the development of numerous well-marked clefts near the inflamed spot contrasts with their more sparing development in the parts of the cornea removed from the seat of inflammation. When it has been more intense, or has lasted a longer time, the cornea may be observed to consist in whole or in part of wide, well demarcated tracts, which are frequently parallel to each other. It can be seen in such preparations, that the double-contoured structures which form each side of what appeared to be a cleft are simply the lateral boundaries of contiguous tracts of cornea substance. Under the influence of the inflammatory change, these tracts are sometimes separated widely from each other, a cleft opening out as a wide gap, and in the floor of the gap can then be seen part of the upper surface of a subjacent tract. This separation of the component tracts or tertiary bundles (if this nomenclature be permitted) from each other is best seen when acute inflammation is rapidly produced.

Fig. 19 represents a small part of a large portion of the cornea of a frog, which was split into its component tracts in twenty hours by the inflammation produced by placing a drop of turpentine on the corneal surface.

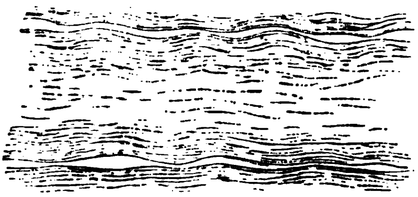


FIG. 19.—Separation of tracts of frog's cornea after twenty hours' inflammation. Turpentine. Gold preparation. Magn. 300 diam.

The examination of a number of corneæ has shown me that when the injury to the cornea is limited, the space over which this division into tracts is prominently seen is also limited. When, on the other hand, the injury has been produced by contact with some diffusible irritant, and the whole cornea has been inflamed, we find the division into tracts well marked over the whole structure.

That this division into tracts is not an accidental tearing is shown by the uniformity in its appearance, by the even borders of the tracts, and by its being only an exaggerated condition of what can equally be seen to exist in the healthy cornea.

In treating a healthy frog's cornea by a solution of purpurine, I have been lately able to observe the tracts and corresponding clefts developed to an extent almost equal to that seen in inflammation. Purpurine, a colouring matter extracted from madder, is a staining agent recently introduced by M. Ranvier,[1] to whose kindness I am indebted for the possession of the sample which I have used. My experience of it, although very limited, has been sufficient to show me that, in the study of the cornea, its use is attended with great advantages.

The significance of these tracts in regard to the phenomena of inflammation is best studied in a frog's cornea, in which inflammation produced by nitrate of silver has been limited to a very small surface, and the animal killed in twelve or twenty-four hours afterwards. The cornea should be left 20–30 minutes in gold solution and then exposed to the light in water acidulated by acetic acid until it has become well stained. The epithelium is removed with a brush or needles, and the cornea examined in glycerine. If the preparation is a successful one, the following appearances may be observed:—

From the cauterized part, recognisable by the usual appearance of the white spaces in a dark ground produced by silver impregnation, a broad tract of cornea substance, deeply stained by the gold reaction, passes towards the limbus corneæ. This tract on careful examination offers the following points for study: It contrasts with the cornea substance by which it is bounded laterally by the fibrillary tissue or ground substance being uniformly stained of a much deeper colour. In the dark tract, the purple black deposit in the spaces which indicates the position of the stellate cells is more abundant than in the other parts of the cornea, and is often in such quantity as to completely hide the stellate nucleus. Frequently, while there is this abundant metallic precipitate in the spaces of the inflamed tract, there is so little of it in those of the other parts of the cornea, that the position of the spaces in them can be made out with difficulty.

---

[1] Archives de Physiologie, No. 6, 1874.

The lateral boundary of this darkly-stained inflamed tract may be formed either by a bevelled border or by a double contoured, perfectly colourless wall, which has an appreciable thickness, of an appearance resembling a section of Descemet's membrane in miniature. This colourless homogeneous border analogy justifies me in assigning to the membranous investment of the tract or tertiary bundle, seen perpendicularly, where it folds round the coloured fibrillary substance. The anastomosing spaces of each tract do not cross the border of this enveloping membrane.

It often happens that this limited darkly-stained inflamed portion of cornea dips downwards, and forms part of one of the middle layers of the corneal substance; and in this case, by alternately moving the focus upwards and downwards, homogeneous, slightly-stained substance can be seen above and below the inflamed portion, and bridging over the gap that bounds it laterally. The demarcation of the upper or lower layers from the inflamed one can be easily traced, because in the case of the former the anastomosing spaces can be seen unbroken laterally at the part corresponding to the boundaries of the latter, the spaces of the inflamed tract, as I have already stated, not extending beyond these boundaries.

This darkly-stained tract being continuous with the part of the cornea injured by the caustic, and differing from the other parts by the abundant deposit of the gold chloride, teaches us two important facts in regard to inflammation, namely, that inflammatory change produced by injury at a given point may be propagated from that point along an isolated well-demarcated tract towards the nearest bloodvessels; and that further, in an early stage of inflammation, the nature of the fluid present in an inflamed tract differs chemically from that present in the surrounding uninflamed tissue.

The strength of this inference lies in the weight assigned to the reduction in the tissues of the chloride of gold in the form of a dark purple precipitate. I am unable to state what the substance is, the presence of which is necessary to the chemical action indicated by the precipitate. We know that it is unequally distributed in the tissues. It is notably present in ganglion cells, nerve fibres, and in the protoplasm which enters into the composition of stellate cells in some forms and stages of connective tissue. It exists normally to a certain extent in the lymph fluid of the tissues, and is always present in that of the cornea to a greater or less degree. But when it is present in an inflamed tract in larger quantity than in the uninflamed portions of the same cornea, it becomes certain that the lymph fluid in an inflamed tissue differs chemically from that usually present in the same tissue in a normal condition.

Observations by pathologists, made by other methods in other tissues, indicate that the change consists in the presence in the fluid of a fibrinogenic material, and the direction of the tract towards the conjunctiva indicates the nearest bloodvessel as its source.

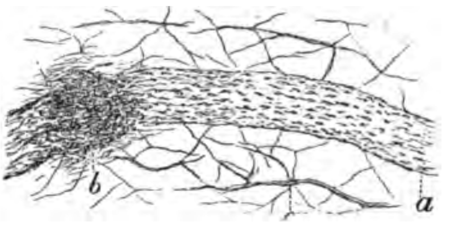


Fig. 20.—Inflamed tract in the cornea of a winter frog (*Rana esc.*), twelve hours after cauterization. Gold preparation. *a*, Border of tract. *b*, Cauterized surface. *c*, Nerve trunk.—Magn. 50 diam.

Fig. 20 represents, as magnified by a low power, a preparation obtained by cauterization of the cornea of a winter frog (*Rana esc.*), which was killed twelve hours afterwards, and the cornea treated by gold.

In the figure the dark diffused appearance resulting from the cauterization is shown at *b*. One of the borders of the inflamed tract is seen at *a*. The dark masses in the tract are the spaces filled by the gold precipitate. The rest of the cornea was scarcely stained at all, showing only the ramifications of the larger corneal nerves, one of which is indicated at *c*.

This important fact, so easy to observe, and so insusceptible of other than one interpretation, has in some unaccountable manner escaped previous observers. The inflamed tracts which I have been describing do not correspond to the "zones" described by some German authors as usually surrounding a cauterized part. The presence of an increased quantity of serous fluid in an inflamed cornea suggests that the separation of the larger bundles from each other is caused by the consequent distension, and not by any change produced in the fibrillary substance of which they are composed.

One of the most valuable and hitherto least regarded properties of chloride of gold solution is, that when brought in contact in certain conditions with the layers of flat cells, which I have shown exist in all connective tissues, these cells become fixed by the gold, and are more or less stained after they have been exposed to light in acidulated water. Mere contact of the solution with the cells is not sufficient to produce this effect, as is abundantly shown by the fact that the cornea has been saturated with the solution over and over again without the slightest indication of these cells being perceived. To produce the required effect it is necessary that the solution find its way easily between the layers, so as to come in contact with the cells on their free surface. The conditions requisite to secure this effectual contact may be obtained artificially by injection, and by various other manipulations suited to the different tissues operated on. One of the earliest effects of inflammation in connective tissue is a separation of the bundles by serous fluid—an acute œdema—and in consequence the gold solution finds its way between the lamellæ and stains the flat cells which cover them. A very short duration of the inflammatory process is sufficient to produce this effect.

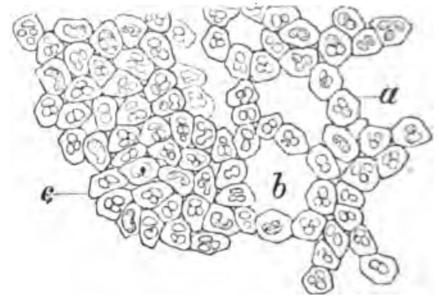


Fig. 21.—Flat cells in a rabbit's cornea. Four hours' inflammation by alcohol. Gold preparation.— Magn. 400 diam. (See further in the text.)

Fig. 21 represents part of a preparation of a rabbit's cornea which had been irritated four hours before the death of the animal by the application of a few drops of methylated alcohol to the surface.

The cells thus stained by gold are seen in two different forms. Most frequently they are arranged in rows which radiate from the central points in which the stellate nucleus is observed when it is successfully stained, the radiating rows from one centre being continuous with those from another, thus forming a broad network of epithelial-looking cells, enclosing colourless meshes.

At other times, in parts of the same cornea in which the radiating groups of cells are observed, cells similar in size and form are seen in broad layers. And transition stages can be found in which the rows of cells become gradually wider, until they pass almost imperceptibly into a broad unbroken layer of cells, with which they are continuous. Or the surfaces in the interior of the cornea may be so completely stained, that there are no radiating rows, the layer being stained continuously throughout.

In addition to the small polygonal cells of the rows and layers, the narrow elongated cells of the primary bundles are also sometimes stained by gold in an early stage of inflammation. They may be seen in the same preparations in which the polygonal cells are found, and then they can be observed in straight rows, one end of the row being in contact with a polygonal cell; the row passing into the fibrillary substance. In this case the position of the cells is similar to that seen in potash preparations of the healthy cornea, or to the aqueous humour preparation shown in Fig. 8; and it explains the direction taken by the injected mass in Schweigger-Seidel's injections.

Or, more rarely, the only cells stained may be those of the primary bundles. Fig. 22 represents a preparation of a frog's cornea in which the inflammation produced by scratching had lasted a few hours, and in which the gold solution was applied to the cornea, both before and immediately after the death of the animal. The only cells stained are those of the primary bundles.

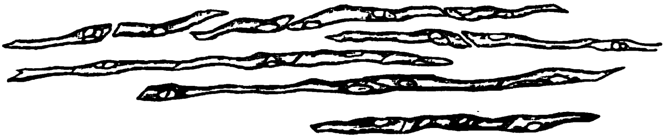


FIG. 22.—Cells of primary bundles of a frog's cornea. Six hours' inflammation by scratching. Gold preparation.—Magn. 350 diam.

The rows of square cells shown in Fig. 21 at *a* have been seen by previous observers. In the *Wien. Medizin. Jahrbücher* for 1871, Hansen illustrates a paper on the changes produced in the cornea corpuscles by inflammation by drawings in which anastomosing rows of flat cells with dividing nuclei are shown in the clearest manner. Stricker, in the *Jahrbücher* for 1874, in a paper on the suppurative process, gives a series of figures in which the same fact is amply demonstrated. I have had occasion to verify the accuracy of the observations of these authors; and even if I had not, Stricker's authority in such a matter would have been sufficient to remove any doubt. It is not in the observation, but in the interpretation of the fact, that I differ from that eminent pathologist.

My respect for the authority of Professor Stricker is so great, that it was only after long and careful study of preparations which, to my mind, admit of only one interpretation, that I ventured to dissent from his views. I owe too much to his teaching to have done so unadvisedly. But having been carried by the irresistible logic of facts far out of the track in which I started in the beginning of my investigations, I would now do neither Professor Stricker nor myself justice were I to attempt to write on inflammation without an examination of his published opinions. In the Vienna *Jahrbücher* for 1874, in the paper on the suppurative process, already cited, Stricker explains in full detail methods by which inflammation of the cornea may be studied. Appended to the paper is a Plate (Taf. XII.) which, if interpreted in the light of the views he holds regarding the normal structure of the cornea, shows at a glance the nature of the preparations on which his opinions regarding inflammatory change are based.

In the centre of the Plate (Fig. 5), a drawing copied from His of the "cell-network" of the cornea of a new-born infant shows a wide open network, in the central points of which a large nucleus is seen. The network is figured as of uniform appearance in every part. The narrowest parts are half the breadth of the broad central points; and there is no part narrower than the narrow diameter of the large nuclei. It is assumed, to start with, that this network is a cellular structure, in which the individual cells have not been "differentiated," or sufficiently separated from each other, to make it possible to say where one cell ends, and another begins. However, each nucleus is supposed to correspond to one cell, and the protoplasma of one cell is supposed to be continuous with that of the one next it. Imagine a field which is cut up by an irregular network of ditches, with a " stepping-stone " at each of their points of junction. According to Stricker's scheme, the field would be the cornea, the ditches anastomosing protoplasm (branched cells), and the stepping-stones nuclei.

Contrasting with this unbroken network, drawings are given of other networks as seen in the cornea of the cat when inflamed by nitrate of silver. These networks from the inflamed cornea, resemble those of the healthy cornea sufficiently to show that there is a unity in the two outlines, but the inflamed network is cut into a number of divisions which have the unmistakable contour of cells, and that they are undoubted cells, is shown by their containing nuclei, both entire and divided. To illustrate this by following out the simile of a field with a network of ditches, imagine the ditches divided into a great number of separate pools by dams, and the pools further irregularly subdivided, and in each separate pool one or more pieces of wood floating in the centre. The pools represent newly-formed cells, and the pieces of wood their nuclei.

Thus, according to Stricker, you have under the stimulus of inflammation a number of new or "young" cells developed out of a pre-existing one. The cells have "proliferated."

That the appearances observed are exactly as Stricker has described and figured them, can be easily verified. But the explanation he gives of them is irreconcilable with what we now know of the anatomy of the cornea.

To begin with, the "cell-network," given as the normal "cornea cells," is, as I have shown in the previous chapter, not a cell-network at all. It is a network of spaces formed by the separation from each other of two lamellæ, in such a manner that the visible contents of the spaces are seen in the reticulated form.

The cells that are seen in Hansen's and Stricker's preparations of inflamed cornea, are the flat cells that can be isolated by potash solution and maceration in aqueous humour from the healthy cornea. They are seen in inflammation as a network formed by rows of cells, because the silver solution then finds its way more readily along the channels between the laminæ than it can in the uninflamed tissue.

The part of Fig. 21 marked *a* is the same network seen by Stricker in silver preparations. His preparations were not, however, sufficiently successful to stain a large unbroken surface, such as that of which a part is shown at *c*. (In the simile of the field and ditches, *a* represents the pools into which the ditch is supposed to have become subdivided.) The belief in the existence of portions of cornea substance, such as that marked *b*, enclosed by a network *a*, is, however, founded on imperfect methods. The clear space *b* is in reality covered by cells similar to those at *c*, but they do not happen to have stained. The cells at *a* are not created by the inflammation, but the inflammatory process permits their being stained.

The cells were there all the time, but were invisible. Once introduce the silver solution in a stream along their surface, and their contour is indicated by the characteristic reaction. In health it is impossible, or almost impossible, to secure the passage of the solution along the surface, but so soon as the laminæ are widely separated from each other by the serous effusion caused by the inflammation, the silver enters easily. It is like the history of the structure of the capillary bloodvessels. They were believed to be composed of a homogeneous membrane, until one day they were injected by solution of nitrate of silver, and a well-marked epithelium was immediately demonstrated.

Thus, in the inflamed cornea, the same cells figured by Hansen and by Stricker can be shown by gold solution; and if it does not succeed so often as the silver solution, on the other hand the preparations, when they are successful, are more instructive than those obtained by silver.

To recapitulate: in a gold preparation like that represented in Fig. 21, we find at one part anastomosing rows of cells precisely like those figured by Stricker and Hansen in their silver preparations; but more than that, we see what they did not find in their preparations, that at some parts the cells are in the form of a broad layer, and a faint indication of very slightly stained cells in the meshes of that part of the rows which is nearest the layer, shows that, whether we have a network or a layer, depends on the extent to which the solution has been able to pass between the laminæ, and that again depends on the extent to which the laminæ have been separated from each other by serous effusion.

All that preparations like those figured by Hansen and Stricker teach us is, that methods by which, in the healthy cornea, the layers of small polygonal cells existing in the tissue are not seen, are capable of demonstrating the same cells when the tissue is inflamed. Of "proliferation," or a formation of new cells, they give no evidence.

But such preparations assist us in studying the effect of inflammation on the flat cells which are thus made visible. It will be seen from Hansen's figures that the flat cells in his silver preparations contain small round bodies. These are products of a division of the nuclei. It will be also seen, on referring to Figs. 21 and 22, that a similar division of nuclei can be seen in gold preparations of the same cells.

It is an undoubted gap in this stage of the investigation that I am not able to describe the changes in these cells as seen in potash preparations, and one that I hope will be filled up by some other worker. The potash preparations succeed best in large corneæ;

and in one or two that I tried, the reaction of the solution failed, and I have not since been able to repeat the experiment.

A more laborious, but more satisfactory, method of studying the changes in these cells than by the use of metallic solutions is to seal a properly prepared frog's cornea in blood serum. I touched the centre of the frog's cornea with a fine point of nitrate of silver, then neutralized the silver by a drop of salt solution, killing the animal after various intervals of time. In the sealed cornea, on the second to the fourth day, both the long and rounded flat cells could frequently be seen. In this way I have been able to examine cells at various distances from the injured part, which, in such preparations, is indicated by the dark silver groundwork and colourless spaces, and after the inflammation had lasted for various periods. The only change anterior to destruction of the cell which I observed was, that instead of one nucleus, there were two or more highly refractive spherical bodies, always smaller than what would have been the size of the original nucleus. The greater their number the smaller was each spherical body. Sometimes one or more such refractive particles were found in the body of the cell.

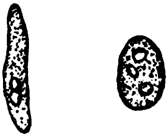


FIG. 23.—Flat cells in substance of a frog's cornea three days after cauterization. Sealed serum preparation.—Magn. 400 diam.

Of evidence of a division of one cell into two cells there was not a vestige.

It may be considered as proved, that in inflammation the nuclei of the flat cells divide. We shall afterwards see that the same fact holds good for the branched cells. What then? Shall we say that the first stage of a production of new cells has begun? No hypothesis more unwarranted by facts than this is, has ever taken root in the history of science. It has been the *ignis fatuus* of pathologists for a generation, and the idea has become so deep-rooted that it may even now appear to some rank heresy to call it in question. As, however, no one has ever seen the divided nuclei become the nuclei of new cells, and as it is desirable to limit discussion as much as possible to appearances which can be observed, I shall pass on to consider what we are taught by facts. One of the earliest effects of inflammation in the cells of connective tissue is, that the nucleus falls to pieces—disintegrates, not into amorphous matter, but into component parts, the bond of union of which becomes weakened and gives way. The process is destructive, not constructive—is the first stage towards the death of the cell. Between the death of the one cell and the birth of another that may take its place, there is not a single fact to be observed that shows that the one is the parent of the other or of others. The question will occupy us again further on, but having had to describe the division of the nucleus, it was necessary, in order to prevent misapprehension, that I should state what I hold it does not mean.

Layers of small polygonal cells with a very large nucleus and a prominent nucleolus can be seen in the cornea of a mouse, after a few hours' inflammation by almost any irritant, if stained subsequently in gold; and such preparations are much more frequently successful in the mouse than in the rabbit. The cells thus seen in a mouse's cornea are only about a fourth the size of the large cells of the layer which can be demonstrated by silver in a mouse's cornea, and which have been shown in Fig. 10.

Similarly, much larger cells than those shown in Fig. 21 can be seen in silver preparations of the rabbit's cornea.

In a gold-injected cornea of a rabbit, into which incisions were subsequently made, and the cornea again placed in gold solution, and subsequently coloured in acidulated water, I saw at different parts of the cornea cells of both layers stained.

If a frog's eye, freed from the anterior corneal epithelium, be placed entire in half-per-cent. gold solution for an hour, and the cornea then excised and mounted in gold solution, the nuclei of all these cells can sometimes be seen.

Before discussing the changes that take place in the branched cells, I shall describe some appearances seen in the fibrillary tissue or ground substance which have not hitherto arrested the attention of observers.

In a cornea which has been inflamed by nitrate of silver, or by abrasion of the anterior surface, and then examined in serum, and especially in sealed serum preparations, portions of the primary bundles of various lengths can be detected on and near the injured part, and sometimes free in the serum. I refer the reader back to Fig. 1 for a representation of the appearance of these structures in the normal condition. When detached in inflammation, they present characters which are not seen in those isolated from the healthy cornea. Although of the same breadth, and distinguished by the same straight lateral contours, they differ from them in being often seen to be cut by a straight transverse line. Like the blood-corpuscles, they are in serum preparations often found packed in the clefts between the larger bundles.

That the substance of which they are composed has undergone a chemical change, is shown by their appearance in gold preparations. They then stain a deep, almost black colour, and show transverse puckerings. Their condition when detached in inflammation is in some respects similar to that of the primary bundles of the neurilemma, and still more strikingly resembles the rods of the retina. This applies to the cornea and retina of the frog. I have elsewhere given my reasons for believing that the rods of the retina are simply one of the forms assumed by fibrillary tissue, and are in fact equivalent to primary bundles.

In osmic-acid preparations of a frog's cornea, which has been abraded for several days, parts of the primary bundles of considerable length are sometimes seen on the surface where the epithelium is wanting. They are even in contour and homogeneous in appearance.

When an abscess forms in the cornea as a result of acute and continued inflammation, if the cornea is treated by gold, large numbers of darkly-stained primary bundles can often be seen matted together with slightly-stained membranous substance, and numberless white blood-corpuscles.

I come now to a consideration of the changes that are to be seen in the stellate cells of the cornea.

The changes in the stellate cells are those on which the controversy in regard to inflammation has chiefly turned in Germany, and in order to avoid confusion, I ask those of my readers who are familiar with that controversy, to bear in mind the conceptions of the corneal cells entertained by the writers who have taken part in it. Stricker, Axel Key and Wallis, Cohnheim, and Böttcher, when they wrote their papers, believed that only one kind of cells existed in the cornea. Consequently, they discussed not what happened in one or another kind of cell, but in the "corneal cells." And as they did not all happen to have observed the same thing, we find a constant reference to discussions as to what the real nature of the corneal cell is. The true cause of the confusion to which all this has given rise seems to have dawned on Cohnheim, who in his last paper on the subject, entitled, "Keratitis Again!"[1]—a polemical essay directed chiefly against Böttcher and Stricker,—frankly confesses that too little is known of the anatomy of the cornea to permit of a settlement of the question, and that "pathological histology has always been, and still is, a whirligig for every possible kind of speculation."

Nowhere has this whirligig of pathological histology gone more madly round than in the inflamed cornea. What has not been seen in it? Böttcher found that in three days all the branched cells had become spindles. Hansen had preparations in which there were crowds of pus cells, but not a single branched cell left, and others in which all the stellate cells had been washed into oblong forms by a stream. Cohnheim observed that when the corneal epithelium is wounded, the white corpuscles of the conjunctival fluid enter the wound, and, marching in goose step along the corneal lamellæ, halt, military fashion, at regular distances from each other, like soldiers on parade, and then become characterized by a newly-acquired spindle form. Truly a *Tummel-platz!*

If the views I have laid down regarding the anatomy of the cornea are borne in mind, it will be easy to understand how everything that has been described by Stricker, Cohnheim, Axel Key and Wallis, and Böttcher is perfectly consistent with them. Their descriptions and their plates correspond accurately with preparations that it is easy to reproduce, as it is only to be expected that they would. The opposite conclusions which have been drawn from these appearances have been due to want of sufficient knowledge of the normal anatomy, and not to any inaccuracy of observation. To this must be added a natural tendency to consider that what is not seen cannot exist—a habit that has been productive of much error in histology.

---

[1] Noch einmal die Keratitis, Virchow's Archiv, Band 61.

Not only the corneal elements, but those of most other tissues, are so absolutely transparent, and so perfectly alike in their refractive power, that the great object at which histologists aim, and in which they have as yet had very imperfect success, is to discover means by which these elements can be seen. It is seldom that any method succeeds in showing more than a part only of the elements known to exist. It has hence arisen that the opinions entertained by histologists on controverted points have depended much upon the methods they have been in the habit of using; and as histologists are generally not equally conversant with all known methods, and are severally apt to have an exclusive preference for those with which they are most familiar, it has come about that equally able and painstaking observers have come to very different conclusions.

In describing the changes I have observed in the stellate cell, I shall be on common ground with other observers only as regards the nucleus. I cannot find that any one of them has ever seen the body of the cell except in one particular condition, occasionally seen in gold preparations, which I shall afterwards discuss; and if they have ever seen the processes, they have not distinguished them from other appearances, which they have erroneously described as the processes.

The nucleus of the stellate cell divides in inflammation, and divides at a comparatively early stage. I know two reliable methods by which this division can be observed. That of which I have most experience, is by gold staining.

Let a cornea, which has been inflamed a few hours or days, be placed in the solution for twenty minutes or longer, and then allowed to stain in the usual manner. A certain proportion of corneæ so treated will show the stellate nuclei stained a bluish slate colour. Frequently, and such preparations are best suited for this part of our study, nothing is stained but the nuclei and the nerves, with a more or less decided uniform reddish tinge of the substance proper of the cornea. The cell itself is absolutely invisible. If the irritant used has been some diffusible stimulant, such as alcohol, the nerves, especially in the frog's cornea, are often seen to their ultimate fibrillæ.

A certain number of such preparations will show that in some parts the nuclei have divided into two or more pieces. I attach little importance to the kidney form of the nuclei, as it is often seen where there is no pretence of inflammation. But there are other forms, which are certainly stages of division. A line sometimes cuts the nucleus obliquely through the centre, leaving the two parts joined by a narrow border. In others, a projecting corner, or a lateral portion, is almost severed from the body of the nucleus. Then we find adjoining these forms, instead of one large nucleus, irregular fragments of what had evidently been a nucleus. And it is nearly always evident that, if the fragments could be placed together again, they would constitute a body of similar size and form to the undivided nuclei near them. Occasionally, instead of a nucleus or parts of a nucleus of appreciable size and form, there is a shapeless granular mass of large particles resembling in colour the stained surrounding nuclei.

These fragmentary portions of a given size, I know to be parts of a nucleus, when I find them in a preparation in which the nuclei are equally stained throughout the whole field; when two or more portions occupy a position that would, according to the distribution of nuclei over the field, be occupied by one; when the portions, further, correspond in colour with the undivided nuclei; and when, further, they do not belong to flat cells, spindle cells, or to white blood-corpuscles,—the only structures with which it could be imagined that they might be confounded. We shall afterwards see that these last can be identified, when they are present, by special characters which they possess.

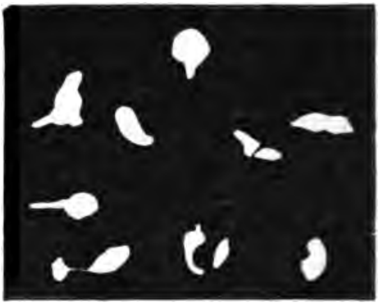


FIG. 24.—Stellate nuclei, entire, dividing and divided. From a frog's cornea, five hours inflamed by mustard. Gold preparation.—Magn. 400 diam.

Fig. 24 shows characteristic forms of the stellate nucleus, divided in inflammation, when treated by gold solution.

Böttcher represents a similar appearance in one of his plates.

In my experience the demonstration of the division of the stellate nuclei by gold has not often succeeded, and when it has, the division has extended only over a very limited area. The changes in the spindle-cells, which I shall afterwards describe, take place over an area much more extensive.

Another method of demonstrating the division of the stellate nuclei consists in staining by purpurine—the dye extracted from madder, the uses of which in histology have been lately described by Ranvier. It has the advantage over gold that it succeeds with more certainty. Its results, in regard to the nucleus, are quite as demonstrative and beyond question as those obtained by gold, but are not more so. M. Ranvier lately showed me a frog's cornea in which the division of the stellate nuclei in inflammation was shown by purpurine-staining in the clearest manner. The method and the preparations obtained by it will be found described in the paper referred to. He pierces the cornea of a frog by a needle, and on the second and third days thereafter inserts the needle into the original aperture. On the fourth day the frog is killed, and the cornea is stained in purpurine. The nuclei of the stellate cells are uniformly stained a very pale rose, and their outline is seen to correspond to that seen in gold preparations. In the vicinity of the spot through which the needle was passed, instead of one large nucleus occupying the position relative to the other nuclei in which a nucleus is to be expected, two or three portions of a nucleus are to be seen lying near each other. The eye can readily judge that the aggregate size of the pieces does not exceed that of an undivided nucleus. In the neighbourhood of these separated portions nuclei can be seen in a partly divided condition. No one can look at M. Ranvier's preparations, or the gold-stained ones I have described, and afterwards doubt that the nucleus of the stellate cell can divide. But it is evident to me from the same preparations that the division is nothing else than a disintegration. The nucleus has fallen to pieces which are not amorphous, but have, at least for a time, a definite contour and individuality.

The products of division in M. Ranvier's purpurine preparation were round. In the gold preparations I have always seen them angular. This difference I attribute to the mode of preparation.

What is the significance of this division of the nucleus of the stellate cell? By some histologists a division of the nucleus will be deemed conclusive proof of the birth of a progeny of new cells —"proliferation." But of this there is not a trace of evidence, nor can any appearance be seen which makes it even probable. If we keep strictly to the facts, it will be found that nothing has been observed, and therefore nothing is known of the future history of these bits of nucleus. There are no young cells, or wandering cells, or pus cells, in the inflamed cornea, other than white blood-corpuscles; and, as we shall see in a future chapter, there are methods by which white blood-corpuscles can be accurately recognised in the cornea. If any one studies carefully the appearance of a fragment of separated stellate nucleus, and compares it with that of a white blood-corpuscle, he will come, I believe, to the conclusion that a transformation so great as is implied in believing that the one is derived from the other, must present transition stages. No such transition stages have been observed. "Pus cells" in an inflamed or suppurating cornea are indistinguishable from white blood-corpuscles, and constitute a definite recognisable structure, the unity of which, as we shall afterwards see, can be established by several distinct methods. By none of these methods can products of a divided nucleus be seen to constitute or approximate in appearance the white blood-corpuscles in the tissue.

Equally unfounded is the idea that, when one such nucleus divides into two or three portions, each portion becomes the nucleus of a new or "young" cell, similar to that to which the original undivided nucleus belonged. Nothing has ever been seen which would favour even the probability of any such hypothesis. If we confine ourselves to facts, we cannot get beyond the simple one that the nucleus falls to pieces—divides. The theory of "proliferation" that has been founded on this fact was at one time a fair and reasonable hypothesis. As a hypothesis, it has however remained utterly unsupported by evidence, and now lives only as a superstition. No other term can appropriately describe a belief in which faith counts for everything, and evidence nothing.

If I am asked what becomes of the separated portions of nucleus, I confess my ignorance. That they undergo further disintegration, degeneration, and absorption, is, however, a supposition consistent with what we know of the changes that take place in the elements of tissues whose vital conditions have been disturbed.

If we leave the nucleus, and come to a consideration of the changes that are observable in the protoplasm and processes of the stellate cells, we come to a field in which I find little to criticise in the writings of the German authors whose names I have so frequently had occasion to mention. A condition in which the cell in the inflamed cornea is seen in gold preparations as a dark spherical body, with distinct contours, is, I believe, that which is represented in Fig. II. of Taf. I. of Stricker's *Studien.*[1] But in the other figures of the plate, and in everything else that I have seen figured, and which has been described, I can find nothing that I can recognise as belonging to the stellate protoplasm or processes. Masses of white corpuscles, nuclei, and portions of separated flat cells, and spindle cells, comprise the mass of what have been believed to constitute products of the inflamed stellate cell.

The stellate cell and processes may be sometimes seen in sealed aqueous humour preparations, or when the cornea is placed in half-per-cent. salt solution. But I have not often found such preparations sufficiently distinct throughout to be reliable. All that I have learned of the stellate cells, has been seen in gold, and more especially in osmic-acid, preparations.

In an inflamed cornea, and in my experience much more frequently in the rabbit's cornea than the frog's, gold preparations sometimes show the dark spherical bodies to which I have already referred. Their distribution in the cornea corresponds to that of the stellate nuclei, but I have seldom been able to observe a nucleus in them; on rare occasions, however, I have seen a nucleus. The contour of these bodies is sharply limited, and I consider their nature is sufficiently established by preparations which I shall now describe. Before leaving them, however, I have to add that they are most frequently seen in a cornea which has been acutely inflamed by the application to its surface of some diffusible irritant.

I have several times obtained preparations in the inflamed cornea of a rabbit treated by gold in which structures were visible which I could identify with certainty as the stellate cells and processes. They are unlike anything that has been hitherto described or figured. Spherical bodies stained very darkly communicate with each other by fine dark lines on which are globular swellings or varicosities. The spherical bodies forming the centres of the network are similar in size and appearance to the isolated spherical bodies previously described, some of which can generally be seen at another part of the field; and that they are identical in nature, is shown by an intermediate zone in which a sphere has only one or two short isolated processes.

---

[1] Studien aus dem Instit. f. Exp. Path. in Wien. Vienna, 1870.

This network I have found in the superficial laminæ of corneæ which had been acutely inflamed by the application of alcohol. The preparations were obtained not by section, but by detaching the superficial laminæ with forceps, a procedure which was facilitated by the action of the very dilute acetic acid to which the cornea was transferred from the gold solution. In the few instances in which I have seen this appearance I have found it extending only over a very limited area, and immediately adjoining it were seen the stellate nuclei and the meshes of the corneal spaces, indicated by an abundant black metallic deposit. Fig. 25 shows this network of inflamed stellate cells.

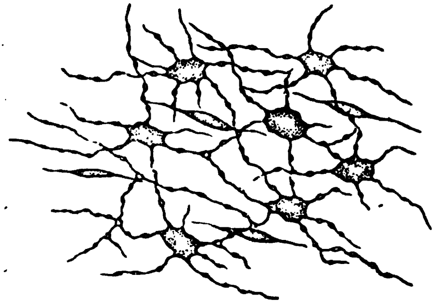


FIG. 25.—Stellate cells and processes from a rabbit's cornea, four hours inflamed by application of alcohol to the surface. Gold preparation.—Magn. 350 diam.

(By mistake the varicosities have been engraved as spaces. They should have been dark throughout.)

In osmic-acid preparations of the inflamed rabbit's cornea, I have been able to see exactly the same appearance, and in them its nature could be better studied.

Several rabbit-corneæ that had been inflamed a week by a thread, were placed twenty-four hours in half-per-cent. solution of osmic acid, and thin transverse sections were then made without further preparation and examined in glycerine. In the majority of these sections, swollen spindle cells, and great numbers of white blood-corpuscles and newly-formed vessels can be seen.

In some of them, where the section is very thin, the stellate cells and their processes become visible. If the section is stained with red aniline, the cells are made much more distinct, and by a double staining with red aniline and logwood the nuclei are also well seen. No one who looks at such a preparation (and I have shown similar ones to several competent observers) can ever afterwards confound the stellate cells with spindle cells or white blood-corpuscles.

It is common to find the stellate cells unaltered in sections which show many swollen spindle cells and many white corpuscles. The stability which the stellate cells manifest when compared with the spindle cells, is very striking. By this method it can be shown that a part of the cornea may be undergoing important changes, and its interstices filled with white corpuscles, and yet the stellate cells and processes be unchanged.

But it sometimes happens that at one particular part of the section in an osmic-acid preparation, the stellate cells and processes have undergone a change. The body of the cell, instead of showing the characteristic lateral curves and projections which indicate the stellate form, has become spherical. Although its width is less than in the unaltered cells in the same preparation, it can be seen that the cell has increased in thickness. From a flattened it has become a globular body, and from its circular contour the processes project abruptly. The processes, instead of being fine, even, double-contoured fibres, like those of the neighbouring cells, present slight dilatations at regular intervals. The altered cells and fibres anastomose with the unaltered ones next to them. Such a preparation is more satisfactory than a similar gold preparation, because the unaltered stellate cells can also be seen, whereas in the gold preparations the altered cells are alone visible.

In a rabbit's cornea, inflamed by a thread, this appearance in osmic-acid preparations is only rarely seen. Whether it would be seen more frequently in osmic-acid preparations of a cornea, acutely inflamed by alcohol—the conditions under which I found it in gold preparations—I do not know.

A drawing of an osmic-acid preparation of these stellate cells shows that there is no difference between it and the gold preparation drawn in Fig. 25, except that of colour. It is therefore useless to give a representation of it, except in coloured plates.

The fibres of the cells shown in Fig. 25, both in the preparation and the drawing, are in some respects so like certain nerve fibres seen in gold preparations of the cornea, that for the sake of those who are not intimately acquainted with the appearance of the corneal nerves, it becomes necessary to show that they are not the same. An opinion originally put forth by Kühne, and recently revived by Thanhoffer,[1] that the nerves and processes of the stellate cells are one and the same structure, makes this the more necessary.

In gold preparations in which the nerves are well seen—and this is only the case when the very fine ultimate fibrillæ, which can be seen by no other than the gold method, are visible—the final termination of the nerves is observed to be in exceedingly delicate beaded threads, which run mostly in straight lines, crossing each other in different places, and joining each other at central points. These fibrils, if carefully traced, are often seen, after running quite straight for a considerable distance, to bend round and take a direction at right angles to their previous course. One fibril often joins another at a right angle, their junction representing that of the limbs of the letter T. They can be recognised by their exceeding fineness, their beaded appearance, their being mostly in straight lines, and in a very successful preparation by their number, which is great. The discovery of this property of chloride of gold, to which science is indebted to Cohnheim, has been of incalculable value in studying the nerves, and its uses in this respect are still far from exhausted.

---

[1] Virchow's Archiv, 63 Bd., 1 and 2 Heft.

Most excellent and instructive drawings of the corneal nerves have been given by Dr Klein in the *Quarterly Journal of Microscopical Science* for October 1871. Dr Klein has also pointed out a fact, which must often have been confirmed by students of the inflamed cornea, that the best nerve preparations are obtained when the cornea has undergone a slight amount of inflammation—a fact no doubt due to the easy penetration of the solution being favoured by the resulting serous effusion.

Fig. 26 shows only sufficient of the appearance and course of these ultimate nerve fibrillæ, as is necessary to contrast them with the stellate processes in Fig. 25. English students who wish to see more complete drawings, may refer to Dr Klein's papers. They can also easily obtain preparations for themselves, from the cornea of a frog or mouse, in which a slight amount of irritation has been produced for a few hours, the excised cornea placed a quarter of an hour in gold solution, and then allowed to colour in faintly sour water. The chief condition of success is a certain amount of serous effusion. As the cornea can be examined entire in glycerine after the removal of the surface epithelium, the manipulations are exceedingly simple.

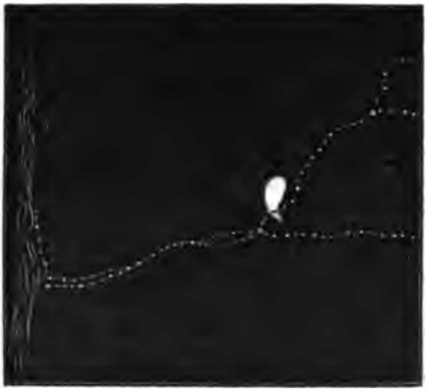


FIG. 26.—Nerve fibrilla crossing stellate nucleus in a frog's cornea. Gold preparation.—Magn. 400 diam.

These fibrillæ differ from the inflamed stellate processes in gold preparations, in being more delicate, in their parallel and rectangular course, and in their complete isolation from the stellate cells and nuclei, which can be made out with absolute certainty in preparations that have been sufficiently successful.

The Hungarian Academy has published a series of twelve coloured plates, illustrating with great detail and beauty Dr v. Thanhoffer's views regarding the structure of the cornea. Copies are sold at a merely nominal price. One of these plates illustrates the nerves of the cornea.

In this plate, surrounding the stellate nuclei there can be recognised the usual metallic deposit, extending in narrowing projections between the bundles. In the plate the fine nerve fibrillæ can be seen to terminate in these projections. From such preparations Thanhoffer has concluded that the nerves end in the stellate cells.

But better preparations, such as those figured by Dr Klein (and I have, during the last eight months, frequently obtained similar ones), show that the nerve fibrillæ do not terminate in those projections as they seem to do in less successfully stained corneæ. They enter the space, pass under, over, or through the less darkly stained granular mass, as an unbroken thread, and are continued beyond it, either in a straight line, or turn round in the space and leave it at an angle (frequently a right angle) to their former course.

Another class of preparations demonstrative of the same fact, are those in which the granular mass in the space is invisible, and in which nothing is stained except the nuclei and the nerves. The nerve fibril can be seen taking a straight course to the nucleus, and as it is not concealed by any other stained substance, it can be followed passing close to the nucleus, and then frequently changing its direction. Its complete independence of the "space" or anything that is contained in the space, is in such preparations put beyond question. One such fibril and nucleus is shown in Fig. 26.

It is evident to me from his plates, that v. Thanhoffer has never seen a process of a stellate cell, nor can I recognise any part of his drawings as being like the cell body. But if more proof be wanting that Fig. 25 does not represent nerve structures, it is found in those osmic-acid preparations which show a similar appearance. Osmic acid stains the medullated nerve characteristically. It is only in very exceptional instances that it stains the ultimate nerve fibrillæ at all. I am not aware that any one has ever seen the ultimate nerve fibrillæ of the cornea in other than gold preparations.

In an osmic-acid preparation, from which a drawing similar to Fig. 25 was made, and in similar ones still preserved, there is not a trace of nerve structure visible.

Further, Fig. 25 corresponds to the distribution of the stellate cells as ascertained by the methods explained in Chapter I.

Having thus shown that Fig. 25 represents the stellate cells and processes, there are two facts connected with the preparation that call for remark.

First, there is the curious one, that the processes of the cells and the cells themselves, otherwise invisible in gold preparations of the cornea, are now seen so darkly stained. The dark colour produced here by the gold, is similar to that seen in the scant protoplasm which surrounds the nuclei of stellate cells in gold preparations of the skin. The fibres of such cells, when seen at all in gold preparations of connective tissue, are usually pearly white.

The hypothesis which I suggest explains the staining of the inflamed cells and processes in the corneal preparation is, that there is in the cell and within the processes an albuminous fluid which is not present in the uninflamed tissue; and I infer from this appearance, that there is a communication between the cells and the interior of the processes, in analogy with a similar fact that can be shown for many elastic fibres.

The varicosities on the processes must, from the regularity of their appearance, be considered as corresponding to peculiarities of structure.

I have not been able to trace any further change in the stellate cells in inflammation. I have not recognised them in the débris of the cornea when broken down by the morbid processes, nor have I seen them undergo any change that would point either to their giving origin to a progeny of pus corpuscles or "young cells" of any kind whatever, or that they themselves undergo any organic transformation.

An account of Mr Lister's interesting observations on the movements of pigment granules in the inflamed web of the frog's foot, which from some points of view should find its place here, will be discussed further on in another connexion.

In the next chapter I shall discuss the changes that take place in the spindle cells in inflammation.

(*To be continued.*)

ARTICLE IV.—*Report of a case of Hydatids of the Liver.* By BYROM BRAMWELL, M.B., Physician and Pathologist to the Newcastle-on-Tyne Infirmary.

(*Read before the Northumberland and Durham Medical Society, 14th October* 1875.)

THE following case is, I think, sufficiently interesting to make it worthy of publication.

William Otto, æt. 31, a sailor, was admitted to the Newcastle-on-Tyne Infirmary on 20th May 1875, complaining of a swelling in the right side of the abdomen.

Previous History.—The patient states that he has been a very healthy man, and was quite well three weeks ago, when he fell, striking his right side against a post. The injury was a trivial one. He felt no worse for two days. The side then became uneasy, and he noticed a swelling about the size of a hen's egg in the right side of the abdomen, just below the margin of the ribs. There was never any discoloration nor tenderness on pressure. The swelling gradually increased in size until four days ago, when it was poulticed. Under this treatment he thinks it has got less. A week after the accident he spat up while coughing about a thimbleful of bright red blood. He has twice since spat up a similar quantity. He has not been in Iceland. Has never been much in contact with dogs. Has sailed in a steamer for the last ten years. On cross-examination, it was ascertained that he has been short of breath, on exertion only, for the last two years.

Present Condition.—His general appearance is that of good health; he is strongly built and muscular. The conjunctivæ are in places slightly yellow. The temperature is 97° Fahr.

On examining the abdomen a marked bulging is to be seen on the right side, between the margin of the ribs and the iliac crest. The swelling is well defined, globular, and projects chiefly forwards; there is no marked fulness in the flank. The tumour is smooth on the surface, elastic to the touch; there is not the least pain nor tenderness to the touch. It is about the size of a large orange. Two veins are seen coursing over it and running up the side of the chest.

The percussion note over the swelling is absolutely dull. No distinct feeling of fluctuation can be perceived. The hydatid fremitus is not present.

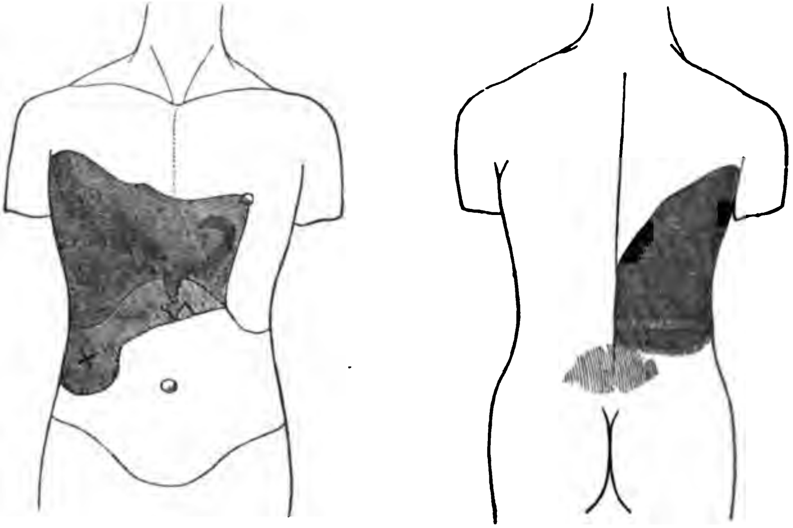


FIG. 1. FIG. 2.

Explanation of Diagram.

FIG. 1.—Front of thorax and abdomen in the case of W. Otto, showing the extent and outline of dulness.

× Points to the spot where the cyst was punctured.

FIG. 2.—Back view of the percussion dulness in the case of W. Otto, showing marked curve superiorly.

The area of liver dulness is greatly enlarged, and is continuous with that of the tumour. Inferiorly it extends in the middle line to a point two inches below the xiphoid. Superiorly it is bounded by a *curved line.* The summit of the arch is in the axilla, and corresponds to the superior border of the third rib. Close to the spine and sternum it is at a lower level, corresponding to the sixth rib behind and the fourth in front. Transversly it extends over to the right side, merging with the cardiac dulness. (The exact outline of the dulness will be readily perceived by reference to the figures.)

At the level of the xiphoid the right chest measures one inch more than the left, being 19¼ inches. Through the nipples the two sides are equal. There is no bulging of the intercostal spaces.

The splenic dulness is considerably increased, measuring 4 × 5 inches. The blood is normal.

The lower parts of the abdomen are natural. The tongue is slightly furred; the appetite poor; the bowels regular.

The urine is normal and free from bile. The patient says there has never been anything wrong with his water.

The cardiac apex beat cannot be felt when he lies on his back. When he is inclined to the left side it corresponds to the nipple. The heart sounds are quite normal. Radial pulse 72.

The percussion note over the left chest is hyper-resonant. Over the right side above the curved line of dulness it is normal. The respiratory murmur is harsh, and the expiration prolonged. Over the dull part of the right chest, the respiratory murmur, vocal resonance, and fremitus are absent. The respirations number 18 in the minute. There is no cough nor spit.

The skin is of natural moisture, somewhat dark coloured. There has been no shivering.

The other organs are normal.

The diagnosis was hydatid disease of the liver.

On 21*st May*, Dr Mickle, our Junior House-surgeon, introduced at my request a medium-sized canula into the most prominent part of the tumour. Forty-two ounces of clear colourless fluid were withdrawn by the aspirator. The specific gravity of the fluid was 1008. It was neutral, contained chlorides, no albumen, no sugar. A few small pieces of cartilaginous-looking tissue were suspended in it. On microscopic examination they were seen to consist of hyaline membrane—perfect scolices and detached hooklets were seen. Some of the so-called calcareous particles of the scolices were deeply stained by an ammoniacal solution of carmine.

23*d May.*—The temperature rose last night to 101° Fahr., the pulse to 90. The patient seems quite well; there is no pain in the region of the cyst.

25*th June.*—The cyst was again tapped to-day. 42 ounces of fluid were again withdrawn. It was slightly opaque, of a greenish yellow colour, specific gravity 1011, neutral, containing a small quantity of albumen—a trace of bile. On microscopic examination, pus corpuscles, a few red blood corpuscles, and many crystals of hæmatoidine, were seen.

27*th June.*—The temperature rose last night to 103° Fahr. The patient had a rigor this morning. He looks ill, complains of headache and thirst; the tongue is dry. There is considerable pain and tenderness on pressure over the cyst, but not over the rest of the abdomen.

At 11.30 A.M. one drachm of powdered jaborandi was given, infused in boiling water. The skin at the time of administration was hot and dry; the tongue parched; the temperature 103° Fahr.; the pulse 114.

The effect of the drug was as follows:—At 12 A.M., temp. 103·6° Fahr., pulse 126, face flushed, sweating commencing, mouth moist. At 1 P.M., temp. 103·4° Fahr., pulse 124, sweating profuse, salivation moderate. At 3 P.M., temp. 102·8° Fahr., pulse 120, face pale, still sweating profusely. At 6 P.M., temp. 101° Fahr., pulse 96, skin still moist.

28th June.—Feels better; tongue clean and moist; no pain; had a good night; skin dry and hot. At 1.25 P.M. a drachm of jaborandi powder was again given, the temperature being 101·8° Fahr., pulse 96. At 2 P.M., temp. 103·8° Fahr., pulse 108, sweating moderate, slight salivation. At 3 P.M., temp. 104° Fahr., pulse 110, sweating profusely, has vomited. At 4 P.M., temp. 101° Fahr., pulse 107, still sweating profusely, has again vomited. At 6 P.M., temp. 99·4° Fahr., pulse 94, sweating ceased, feels much better.

30th June.—Cyst again punctured; 39 ounces of greenish-yellow fluid withdrawn.

9th July.—Again punctured; 41 ounces withdrawn. The fluid was darker coloured, and thicker than before.

16th July.—He is much worse; looks ill; has an anxious expression; has lost a great deal of flesh; is decidedly jaundiced. The tongue is dry and furred; he complains of great thirst. There is much pain and tenderness on pressure over the cyst. The abdomen is uneasy, distended, and tympanitic. He sweats profusely at night, and has several times had a slight shivering. The cyst is again full. It was determined to make an incision into the cyst. Dr Mickle cut down upon the most prominent part of the cyst. A free opening was then made into the sac. About 40 ounces of dark-coloured, offensive, purulent fluid escaped. The cavity was syringed out with a weak solution of carbolic acid, 1 to 40. A full-sized drainage-tube was introduced. The operation was performed under the strictest antiseptic precautions, the wound being dressed with gauze in the usual manner. The dressing was changed at 9 P.M.

17th July.—The patient is greatly improved. He had a good night; has eaten well; is free from pain; the temperature is subnormal.

22d July.—There is more discharge to-day. It is thick and slimy. The temperature has again commenced to rise; the tongue is quite clean; the patient's general condition good.

27th July.—A portion of cyst wall, measuring 2 by 2 inches, came away to-day. The discharge is very copious, thick, and slimy.

28th July.—Another portion of cyst wall discharged.

9th August.—Discharge still copious. Patient's general condition is good, but the temperature rises in the evening. Ordered ten grains of quinine, three times a day.

12th August.—Quinine to be discontinued. It has made him very deaf.

17th August.—For the last few days the evening temperature has been very high, and the patient has not felt so well. A very large portion of cyst wall came away to-day. It completely filled a large breakfast-cup; covering, when spread out, two dinner-plates. It was of a dirty green colour.

18th August.—Patient is greatly better. The temperature has remained quite stationary since yesterday. From this date recovery was steady.

13th September.—Sweating profusely at night; ordered one-eightieth of a grain sulphate of atropia, three times a day.

20th September.—Sweating ceased. There is now very little discharge; the tube has been several times shortened. A weak solution of iodine was to-day injected through the tube, instead of the carbolic solution.

7th October.—Patient feels quite well. The discharge is almost *nil;* the wound almost healed. The hepatic dulness, though very much less extensive than on his admission, is still increased. Inferiorly it corresponds to the margin of the ribs. Superiorly it reaches its highest level in the axilla, and corresponds to the superior border of the fourth rib; the splenic dulness is also still increased.

Remarks.—The diagnosis was arrived at in the following manner:—1st, The dulness over the lower two-thirds of the right chest was evidently due to the enlargement of the liver. Pleuritic effusion was excluded by the general condition of the patient, the previous history, and, above all, by the marked arching upwards of the superior line of dulness. 2d, The globular elastic swelling was evidently connected with the liver, and could not from its position, and from the absence of any history of pain, be a distended gall-bladder. We had therefore to deal with an irregular enlargement of the liver. The patient's general condition and the characters of the tumour excluded malignant disease. Hepatic abscess was negatived for the same reason, and because of the absence of all pain and febrile disturbance. The enlargement was evidently, therefore, due to hydatid disease.

The history of accident was at first sight somewhat misleading. The injury, no doubt, directed the patient's attention to the part. Possibly, too, the cyst underwent some enlargement as a result of the external violence. With reference to the receipt of former injury, it is interesting to note the remarks of Dr J. Warburton Begbie. He says—"A very curious circumstance respecting hydatid growths in man is, that they have frequently been observed to develop themselves in parts of the body which have received some or another former injury. Dr Budd has especially noticed this, remarking—'Of the published cases of hydatids of the liver, there is a considerable proportion in which the tumour seems to have formed soon after a blow on the side, and, as was supposed, in consequence of it.' Several of the cases recorded by Frerichs had apparently an origin of this sort."[1]

The diagnosis having been arrived at, the treatment was next considered. There was no difficulty in deciding that operative procedure was required. The large size and the position of the cyst rendered it very liable to rupture by a blow or fall. "The presence of such a cyst is," in the words of Heller, "like the sword of Damocles, constantly threatening danger."[2] We know that a rupture into the peritoneum is nearly always fatal.

It is unnecessary to call attention to the mode of operative procedure which was adopted, further than to say, that in any future case I would dispense with the preliminary tappings, and at once introduce the drainage-tube, using every antiseptic precaution. I see by the *Lancet* of 18th September, that a well-known French surgeon, M. Verneuil, recommends this method of procedure. The opening should be free, in order that any detached portions of cyst wall may escape. Where the cyst is not adherent to the abdominal walls, a small opening should first be made. After the formation of adhesions, this could be enlarged, and a full-sized drainage-tube introduced.

The Temperature Chart of this case is very interesting. Two days after the second tapping there was a marked rise, which continued more or less uninterruptedly until the free opening was made on 16th July. The introduction of the drainage-tube was followed by a marked fall. On 21st July, there was again a rise, which continued until a portion of the cyst wall was expelled on 27th July. After the final expulsion of the cyst wall, the fall was most marked. For some days previous to 16th August, the evening temperature was very high; the large portion of cyst wall was doubtless at this time loose in the cavity of the cyst.

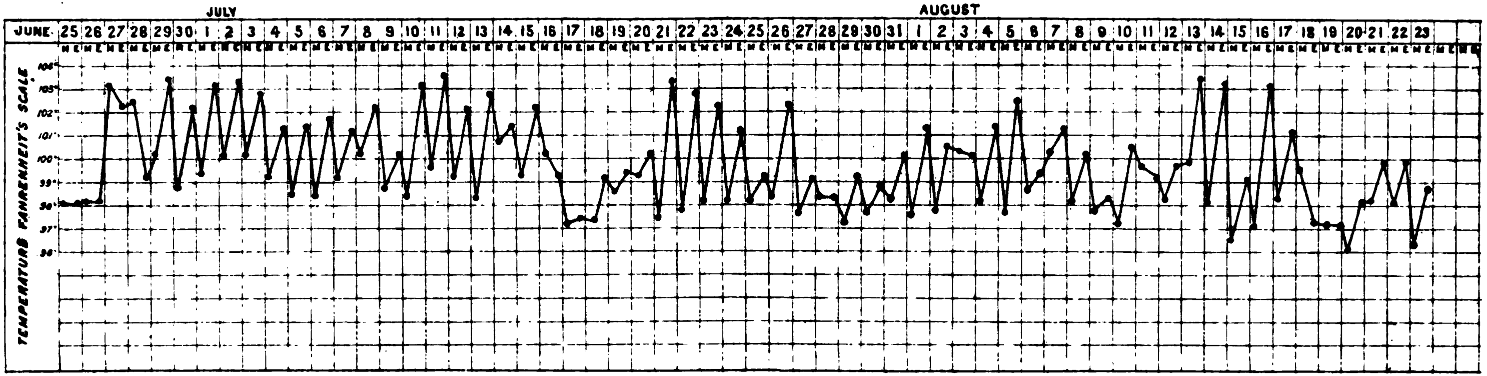
It will be seen by reference to the chart that both jaborandi and quinine brought down the temperature. After the second dose of jaborandi there was a marked but temporary rise. An hour and a half after the administration of the dose the mercury had risen 2·2° Fah. This is quite exceptional. In most cases, from the first there is a gradual fall. The usual well-known effects of the drug were produced. No effect on the pupil nor vision was observed. After the second dose, there was vomiting.

---

[1] Russell Reynolds's System of Medicine, vol. iii. p. 402.

[2] Ziemssen's Cyclopædia of Medicine, vol. iii. p. 578.

CHART OF TEMPERATURE. *Hydatid of Liver.* OTTO.



REMARKS.

June 25. Punctured with aspirator ; 40 ounces of slightly purulent fluid withdrawn.
27. Severe rigor. One drachm of powder of jaborandi administered.
28. One drachm of powder of jaborandi administered.
30. Punctured with aspirator ; 39 ounces of thick pus withdrawn.
July 9. Again punctured ; 40 ounces of pus withdrawn.
16. Free opening made into cyst under strict antiseptic precautions. Very large drainage-tube inserted.
27. Small portion of cyst-wall came away ; measured two inches by one and a half.
29. Another small portion of cyst-wall came away.
Aug. 18. Very large portion of cyst-wall came away.
23. From this date temperature was normal.

The effect of sulphate of atropia in controlling the nocturnal sweatings was well marked.

It is worthy of note that the patient is a sailor. "Frerichs and Devaine both notice the statement, resting chiefly upon the high authority of Dr Budd, that sailors enjoy a remarkable immunity from hydatids of the liver."[1] This statement was made in the time of sailing-ships. It is probable that it is losing weight; for in these days of short voyages and steam, the surroundings, food, etc., of the sailor are becoming more and more on a par with those of the dweller on land. In the same proportion, we may expect his immunity from hydatid disease to decrease.

It is difficult to estimate the value of the antiseptic precautions in this case. It was not a favourable one for "Lister's method," for the contents of the sac were already fœtid. That the operation was followed by marked benefit cannot be doubted. It must, however, be remembered that the introduction of a large drainage-tube, by relieving tension, and by affording a constant free exit to the discharge, would of itself tend in no small measure to a good result.

By reference to the note made in 7th October, it will be seen that the liver is still enlarged, possibly owing to the presence of another cyst. We have no means of ascertaining the position of this cyst even if it do exist. Any further operative procedure is certainly contradicted.

Some of the so-called calcareous particles were deeply stained by Beale's carmine solution. This fact seems to confirm Professor Huxley's view, that in their early stage of development these particles consist of protoplasmic material.

ARTICLE V.—*The Antiseptic Treatment of Empyema.* By ALEX. J. SINCLAIR, M.D., F.R.C.P.E., Physician to the Royal Dispensary.

THE prognosis of empyema has undergone considerable modification since the time of Laennec, who has told us that the operation for its cure is seldom successful. Numerous contributions to medical literature have subsequently informed us that a considerable number of cures can be effected by judicious care and treatment. Still the number of unsuccessful cases are much in excess of the successful. It is therefore a matter of some importance that means should be devised to render our prognosis of this complaint more hopeful, and which may tend to bring our patient safely through what must still be considered a grave and serious disease.

From the record of cases hitherto mentioned by observers, none can be found in which absorption of the fluid was obtained by the use of external and internal medicamenta alone, and without the aid of an external incision, puncture, or opening, made in the costal or pulmonary pleura.

---

[1] Russell Reynolds's System of Medicine, vol. iii. p. 401.

As it therefore seems that the successful treatment of this disease cannot be carried out without permitting the escape of the fluid by means of an opening, the question will arise, Where, by what means, and by what method, is this opening to be made? and what subsequent treatment is necessary to effect a cure?

I shall shortly review a few of the most successful methods by which the operation has been performed.

Dr Warburton Begbie has given to medical literature an admirable contribution on Paracentesis Thoracis,[1] in which great success attended the treatment of serous effusions of the chest, by the simple withdrawal of the fluid by means of a trochar and canula—no special precautions being used. When the same means were adopted for an effusion when purulent, his hopes of success were much modified. He relates one successful case, in which the treatment adopted was successful, but at what an expense of strength and drain to the system may be imagined, when the treatment consisted of nine tappings of the chest, extending over several weeks, and withdrawing 1000 oz. of pus. The chest was ultimately opened by a bistoury, a fistula produced, and, after other six months, the wound healed—a second 1000 oz. of pus being lost during that period. How few constitutions could stand such a drain, without the seeds of some serious disease being sown! Dr Begbie comes to the conclusion that puncture of the chest by trochar in empyema, although a doubtful means as regards ultimate recovery, is the best remedy to employ; but as a palliative operation, he highly recommends it.

Trousseau[2] relates a case with some satisfaction, in which purulent effusion necessitated puncture by trochar three times. A solution of iodine was injected more than 200 times; there were nearly as many chlorinated and aromatic injections used. In the end, a cure was effected. The treatment extended over twenty months; the purulent secretion during that time averaging more than 40 quarts.

Dr Bowditch found that in 24 cases of empyema, 8 recovered; 7 died, 9 were relieved one or more times, but all at the expense of protracted convalescence, terminating usually in phthisis, in a fistulous opening, or in a "doubtful result." The treatment consisted of the use of the syringe well known as called after him.

Dr Brotherston of Alloa published in 1853[3] an account of three cases in which the trochar was used—all had ultimately to be opened by a bistoury; one of these cases died.

Previous to this, in 1844,[4] Dr Hughes and Mr Cock gave the short history of 8 cases, in which 2 died; 2 partially, and 4 completely recovered. Of these recoveries 3 were children, and 1 a lad of 19 years; 3 of these cases were treated by canula being left in the wound, and a fistulous opening formed; one by an opening being made into an external abscess formed on the side. In all, the recoveries were tedious, and the amount of pus evacuated from time to time, and discharged, very large.

---

[1] Edin. Monthly Journal, 1866.
[2] Clinical Lectures, vol. iii.
[3] Edin. Monthly Journal, 1853.
[4] Guy's Hosp. Reports, 1844.

Dr Hamilton Roe gives the history of 9 cases of empyema,[1] 8 recovered, 1 died. Of these, 6 recovered by means of a fistulous opening being established. The history of the other 2 cases is imperfectly reported, and hence leaves room for doubt that recovery was accomplished without the formation of a fistulous opening. Dr Thompson, in the same journal, gives an interesting account of a case in which four tappings, previous to the establishment of a fistula, were resorted to.

Dr Playfair relates the cure of a case in 42 days, by a curious method.[2] The canula, having an indiarubber tube attached, was kept in the wound, and the end of the tube in a bottle filled with water.

In reviewing the history of empyema, it seems strange that a fistulous opening is not made at the onset of the disease, and that the patient should be exhausted by previous successive tappings, before nature or the surgeon has established a patent external opening, without which few, if any, cures can be effected. Why therefore this delay? The question can only be answered by the argument, that in opening such a large cavity at once, and giving the free entrance to an atmosphere bearing with it the seeds of putrefaction, profuse suppuration is too surely the result, and hectic supervening rapidly carries off the patient. We therefore hesitate and delay before taking such a step, and palliate the symptoms by the use of a trochar or aspirateur.

The following two cases illustrate this well, as in the first instance the usual palliative treatment was adopted.

CASE I.—Margaret C., æt. 11 years, a delicate-looking girl, was attended by me in September 1873, for pleurisy of left chest. She made a good recovery, and I ceased my attendance on her.

I was called again to see her on the 11th December, and found her much emaciated; she had slight cough, unaccompanied by expectoration. Pulse 130. The whole of left chest was dull on percussion. She suffered much from hectic. Respiration was not at all embarrassed. Owing to the progressive weak state of the patient, and the strong suspicion of the fluid being purulent, an operation was at once determined on. The following day a trochar and canula were passed between eighth and ninth ribs, a short distance posterior to the middle line. An indiarubber tube, placed in a basin of water, was attached to the canula. Thirty ounces of pus were

[1] Med. Chir. Trans. 1844.

[2] Lancet, 1871.

withdrawn. The operation lasted two hours, as the pus flowed slowly. She was much exhausted, but expressed herself as feeling easier and better. She passed a good night. The chest was painted with equal parts of tinct. and lin. of iodine, B.P.

16*th.*—The pulse, which had gradually diminished in frequency since the operation, again rose, and symptoms of re-accumulation of fluid in the chest became evident.

19*th.*—Twenty ounces of pus were withdrawn by aspirateur, and the cavity washed out with a solution of carbolic acid, 1-40, this being readily done by reversing the action of the instrument. Great exhaustion was experienced during the operation, and immediately after it she fainted. She remained in a state of syncope for half an hour. In the evening she rallied and felt better. She continued to improve till the 25th, when re-accumulation of the fluid again took place.

28*th.*—I opened, under an antiseptic spray of carbolic acid, 1-40, an external abscess which had formed on the side, and having introduced a three-inch drainage-tube, covered the opening with oil-silk protective, several layers of antiseptic gauze, and a large sheet of medicated tow. A bandage was firmly applied round the chest.

31*st.*—There is a great improvement, and a desire for food is for the first time expressed. The dressings were changed under the antiseptic spray, two ounces of pus only being on the gauze. The dressings of the wound were renewed twice a week, one ounce of pus being on the gauze each time.

21*st January.*—As the pus has undergone a considerable diminution, it is found sufficient to change the dressing once a week.

15*th Feb.*—The amount of pus on gauze is about a teaspoonful. The drainage-tube has therefore been removed.

10*th March.*—The wound completely healed; is able to run about; has got stout and robust, and feels in perfect health.

CASE II.—This case presents a double interest, as the empyema arose from a vertebral abscess breaking into the pleural cavity.[1] The subject of these remarks was a delicate young lady, whom I attended in March 1874, with symptoms of acute pleurisy of left side. She had had caries of the dorsal vertebræ in childhood, the remains of which had left a permanent deformity. No evidence of existing disease in the spine could be ascertained. On auscultating the heart, a presystolic murmur was audible at the apex. She had suffered lately from menorrhagia. The pleuritic symptoms were treated, and she recovered. After her recovery from the pleurisy, weakness and debility still existed, and notwithstanding change of air, and general tonic treatment, a gradual emaciation, accompanied by slight perspirations and febrile attacks, took place. No pain, dulness, or tenderness along the back or spine could be detected. She, however, complained of frequent shooting pains in left shoulder and along the arm. This latter symptom was ascribed to the diseased condition of the heart; and as no other symptom to account for the increasing debility was present, the progressive weakness was ascribed to the same cause. As strong suspicions arose of phthisis supervening, frequent examinations of the chest were made. Dr Begbie, who saw the case with me, concurred in my suspicions, although nothing distinctive of pulmonary disease was ascertainable. On visiting her on the 11th July, she told me that she felt as if something had given way in her chest, and immediately after she had a feeling of relief. I found her left back, to the middle of the scapula, dull on percussion; respiratory sounds were inaudible at that part. I came to the conclusion that fluid in the chest was present, and that the fluid arose from an internal abscess bursting into the pleural cavity. I had no other means of accounting for the very sudden appearance of the fluid, as I had examined her chest two days before, and had no evidence of its presence. Fearing the consequences of opening such an abscess, and no urgent symptoms being present, I endeavoured rather despairingly to obtain absorption of the fluid by painting the chest with the tinct. and lin. of iodine, without obtaining any result. The appearance of a fluctuating tumour, a little to the outer side of lumbar region, determined me to delay the operation no longer. I therefore, on the 27th, with the kind assistance of Dr Begbie, withdrew by the aspirateur 20 oz. of thick greenish pus. She expressed herself as much relieved, and passed a good night.

---

[1] A somewhat similar case is mentioned by Dr Gairdner in his Clinical Lectures. It terminated fatally.

The improvement continued up to the 3d August, when re-accumulation of the fluid took place. On the 6th I again tapped her, and withdrew about the same quantity as formerly. This was again followed by a temporary improvement, although great exhaustion was experienced during the second operation. Re-accumulation of the fluid soon after took place. An incision was therefore made with bistoury, under a spray of carbolic lotion. A drainage-tube was introduced, and the wound dressed as in the former case. 12 oz. of pus escaped during the operation. After three days the dressings were removed; 6 oz. of pus were on the gauze—it was quite inodorous.

Subsequently the dressings were changed every third or fourth day. The quantity of pus on the gauze had, by the 7th September, diminished to 1 oz. By the end of October it was found sufficient to change the dressings once a week. On the 24th March I removed the drainage-tube. On the 1st April she went to the Bridge of Allan; and I heard from her, that on changing the dressing a week after, she found the wound completely closed. From the date of the last operation her health had undergone rapid improvement. She had greatly gained in flesh, and, notwithstanding a severe attack of diarrhœa, had become stouter and stronger than ever she had been in her life before. I omitted to mention, that during the progress of the case, the recumbent position was strictly enjoined, the bed and couch being made in the form of an inclined plane.

Remarks.—The first case is of no great interest. It was a favourable one for recovery, as the disease occurred in childhood. It was not my object to relate the history of this case as merely a successful one, but to demonstrate the great advantage obtained by the opening of such cavities by the method recommended by Mr Lister, and to show how free from danger such a procedure is, and the consequent folly of practising delay by using previous palliative measures.

The second case was totally different. Here there was every symptom present to make our prognosis unfavourable. I am therefore satisfied that if any other means had been adopted, success would not have been the result in this case, and that death from hectic or phthisis was only too surely to be expected.

The folly of delaying incision in cases of empyema is only too clear, by reading the history of these cases. The best method for the patient is therefore at once to make a fistulous opening, after satisfying yourself that the fluid is purulent, this method being robbed of its dangers by carefully making the incision, and subsequently dressing the wound antiseptically. Independently of the freedom from danger, the cleanliness and comfort to the patient can only be known by those who have seen the profuse discharge of pus from an ordinary fistulous opening in the pleura after empyema, an opening which may continue patent for many months after the original operation; and although I cannot claim for the antiseptic treatment of empyema the absence of subsequent deformity of chest, I may mention that, in both these related cases, no flattening or twisting of the chest has remained.

ARTICLE VI.—*Arsenic-Eaters of Styria.* By R. CRAIG MACLAGAN, M.D.

IN the *Medical Journal* of September 1864, I gave a succinct narrative of my observations when in Styria a few months before, on a couple of arsenic-eaters, Flecker and Schober, whose acquaintance I had been enabled to make by the kindness of Dr Bernard Knappe, then resident at Liegist.

I have received a copy of the journal of the forty-eighth meeting of the Association "Deutcher Naturforscher und Aerzte," held in Gratz in September last, containing the report of a communication by Dr Knappe on the habit of arsenic-eating, illustrated by the demonstration of two habitual arsenic-eaters, who took their dose in presence of the meeting. This being a sort of public testimony to the accuracy of the observations previously made, an extract from the report may not be without interest. Dr Knappe, after giving a résumé of the literature of the subject, said—

"As to the number of arsenic-eaters, it is difficult to say anything with certainty. I have convinced myself that there are many in Upper and Middle Styria. Very many woodcutters, stablemen, and gamekeepers are arsenic-eaters to my knowledge, and some women also. Many begin to take arsenic in their seventeenth or eighteenth year, and continue the custom to a great age. The majority of arsenic-eaters conceal the habit, thus rendering it impossible to make an accurate statement as to their number. The reason most commonly given for arsenic-eating is, that it is a prophylactic, as in the case of Flecker; the next reason is the desire to have a bright complexion; another, that it is a preventive of short breath, and an aid to the digestion of difficultly-digestible viands. A poacher in Upper Styria, who gave me proof of his being an arsenic-eater, stated that he acquired courage by the taking of arsenic. It is also considered to be an abortifacient, and I had the opportunity in Liegist of making a post-mortem examination of a peasant girl, who had taken arsenic for this purpose. The fœtus came away, but she herself died two days after of arsenic-poisoning.

"Arsenic-eaters are, in all cases with which I am acquainted, of healthy appearance, powerful, and with sexual desires strongly developed. I am of opinion that only strong persons can accustom themselves to it. They attain sometimes great age. I saw in Zeiring a still very strong charcoal-burner at the age of 70, who had taken arsenic, it was believed, for forty years. I have never noticed in habitual arsenic-eaters any arsenical cachexia. It happened, however, that an arsenic-eater, a currier's apprentice in Liegist, 1865, took while intoxicated an overdose, and brought upon himself an acute attack of poisoning. According to his statement, he had taken a piece the size of a bean. He recovered, however, and again took to arsenic-eating, but with more circumspection.

"According to my observations, both white arsenic, that is, arsenious acid, AsO_3, and yellow arsenic (orpiment), AsS_3, are taken dry, either alone or sprinkled on bread. The dose of arsenic is at first, as one may suppose, very small, and is by degrees enlarged. The largest quantity taken before me was by the above-mentioned poacher, in Zeiring, namely 14 grains. Schober took in my presence, on 17th April 1865, 7½ grains.

"The intervals at which the arsenic is taken vary considerably; fortnightly, weekly, or twice or thrice a week.

"Doubts as to the certainty of the fact that arsenic-eaters exist, may after the present demonstration be considered as definitely removed.

"J. F., aged 55 years, has taken arsenic since 1849, usually the orpiment. The necessity of entering a house in which fifteen persons had already died from typhus, and into which no one would venture, was the cause of his first taking it. He desired to protect himself from this disease by taking arsenic. He at first took about one grain in three days. Though at the time not feeling quite well, he had neither vomiting nor irritation of the stomach. At present he takes about six grains of orpiment once a week, but more on occasions of increased exertion of strength or after heavy food. He says the arsenic brings the wind off his stomach, and states that his father also took considerable doses. He knows many persons in the neighbourhood of Liegist who take arsenic, many of them in larger doses than his, and he says that they all enjoy most excellent health.

"P. H., aged 25 years, servant in Schwanberg, has always been in service as a cattleman, and noticing that the other cattlemen gave arsenic to their beasts and took it themselves, he tried it also, and has accustomed himself to its use. He takes every eight days a piece on bread or bacon, has always been fresh and healthy; only when he tried to stop the practice he felt as it were a want—a certain discomfort. He like F. usually takes the orpiment."

At the conclusion of the address, J. F. took 0·30 gramme (about 4·6 grains) yellow sulphuret, P. H. 0·40 gramme (rather more than 6 grains) arsenious acid, in presence of the meeting.

To the questions of Dr Bartel, whether, by the continual use of arsenic, impotency resulted, and of Professor Gerhard, whether paralysis, or a diminished electrical irritability occurred, Dr Knappe replied that, from his observations, the opposite of the first was the case, and he had never seen anything of the second.

Dr Knappe, in a short private letter, informs me, that on the day following, *i.e.*, the 20th September, he showed the Association both the subjects of experiment in the best condition, and that Dr Hoffman, Professor of Pathological Chemistry in Gratz, had, on the 23d, demonstrated by Marsh's test the presence of arsenic in their urine. These observations of Dr Knappe are interesting, as confirming the statements made by me in my paper in 1864, more especially as one of the subjects of his observations, J. F., is the Flecker whose case I then recorded.

ARTICLE VII.—*Personal Experience of Death from Aneurism and Disease of the Heart in the Service: A Clinical Note.* By Surgeon-Major WILLIAM CURRAN, A.M.D.

(*Continued from page* 437.)

WITH regard to the cases quoted below, their best, perhaps only, recommendation is centred in the fact that they have in the main occurred within the area of my own personal cognizance, and I purposely refrain from encumbering the text with details which might be either irrelevant or superfluous. I have no sympathy with those writers who "could distinguish and divide a hair 'twixt south and south-west side," and I am of opinion that distinctions have been introduced into the description of cardiac sounds—normal and otherwise—which are either not amenable to the ordinary laws of acoustics, or which are so finicking and minute as to be unintelligible beyond the charmed circle of those who devised them. Thus, Walshe has, if I am not misinformed, described a "murmurish murmur;"[1] and others, who purport to be more practical, are equally incomprehensible. For such fantastic refinements of a fanciful physiology I have no taste—in fact, I believe with Trousseau,[2] that "the study" of them "is essentially one more curious than useful;" and I am old or humble enough to feel that "the difficulties of special diagnosis are still infinitely greater than many might be led to believe." So much is this so, that the treatment of diseases of the heart must ever be fraught with apprehension and anxiety; their gravity and suddenness are greater than those of any other with which our organism is afflicted; but as they revolve themselves, generally speaking, and especially so in the army, into the two great, though by no means incompatible conditions, of dilatation and hypertrophy, I will adopt, in my estimate of these, the plain description of Latham, and so spare my readers the introduction of a tedious and possibly unprofitable digression. Discussing, then, these conditions, the last-named great writer says, "When the sounds and impulse of the heart are both perceived beyond the præcordial region, they give notice, generally speaking, of dilatation of one or other of the ventricles: if, under these circumstances, sound predominate over impulse, then with dilatation there is either attenuation or somewhat less than a proportionate increase of its muscular substance: if impulse predominate over sound, with dilatation there is either hypertrophy or somewhat more than a proportionate increase of its muscular tissue." And, sheltering myself behind the shield, or subdued by the example and words of the great authorities referred to above, I will now proceed to relate ten of the more typical of those deaths that have come under my own notice; and I will reserve for future criticism such points in connexion with them, as their general surroundings or individual peculiarities may appear to suggest or require.

CASE I. *Valvular Disease.*—Sergeant L. F. was proceeding as an invalid to England, through a station in the north-west, in which I happened to be serving at the time, when a sudden accession of graver symptoms than he had previously suffered from obliged his attendants to leave him behind, and in this way he came under my care. On admission his state was such as to preclude a sufficient examination. The expectoration was difficult and blood-stained, his breathing was short and laboured, and he suffered from general anasarca of the legs, belly, and scrotum. In fact, his whole appearance was opposed to any hope of recovery; and though some slight improvement followed the rest and other remedies employed, it was yet clearly seen that the end could not be far off. Accordingly syncope having supervened on the morning of the fifth day from that on which he was admitted, he died suddenly a few minutes afterwards; and on examination of the remains nine and a half hours subsequently, the body was found to be pale and anasarcous. The head was not opened. The right lung was engorged and adherent, but the left was healthy, and the heart weighed 1 lb. 3 oz. It was considerably enlarged, and its aortic valves were patulous and dilated by a fibrous deposit, the size of a large pea, in the centre of one of them. There was, however, no corresponding appearance of dilatation in any part of the aorta itself; and, as might be expected, the mitral orifice was proportionately enlarged, and one of its valves was thickened with a deposit similar to that described above. The columnæ carneæ of the left ventricle were greatly hypertrophied, the right auricle was dilated to fully double its ordinary size, and all the cavities contained large soft clots. The organ had, in fact, lost the power of expelling its contents; and the only other feature worth noticing here is, that the left kidney appeared to be rudimentary, weighing under an ounce, and presenting only a few imperfect fasciculi of uriniferous tubes; while the left weighed seven ounces, and appeared to have been at some time or another the seat of an abscess.

---

[1] This distinction without a difference, if such it can be called, is well calculated to remind the reader of Aubrey De Vere's "Inisfail" of his curious description

> "Of Scotus the subtle who clove a hair
> Into sixty parts, and had marge to spare."

[2] Lectures on Clinical Medicine, vol. ii. p. 399.

CASE II. *Fatty Degeneration.*—Of this case I retain only a very imperfect recollection, and the note I took of it at the time is not now available for reference. All I can remember with certainty about it amounts to this, that he was left behind in my charge by Dr Webb, H.M.'s 1st Battalion 23d Royal Welsh Fusiliers, on the departure of that corps from Agra for Jubbulpore in, I think, the winter of 1865–66. The poor man was so hopelessly ill as to render an examination useless or inconvenient, and he died suddenly one cold night in the following November or December. As is my wont in such cases, I wrote the "casualty report" on a separate piece of paper, which I still retain by me, and from this I now copy as follows:—Post-mortem, seven and a half hours after death, revealed no appearance of injury or discoloration; there was very little rigidity, and the features retained their usual expression. The lungs were healthy, but the heart was found to be very prominent, ponderous, and bulky;[1] and the pericardium contained a quantity of turbid fluid, amounting to four ounces or thereabout, which coagulated under the application of heat. Its lining membrane felt rough, puckered, and leathery, and the aspect generally indicated old-standing irritation of its opposing surfaces. The heart itself had evidently undergone considerable fatty change; the muscular tissue of the left side was replaced in great part by that material, and it felt, in consequence, soft, friable, and greasy. It yielded readily to traction or pressure, and the appearances generally left no doubt as to the nature of the complaint from which he had suffered during life, or as to the cause of its sudden termination in death. Beyond some passive, possibly hypostatic, congestion of the other viscera, there was no abnormality in any of them that calls for record here.

---

[1] Dr Quain has noted that "this state"—to wit, that of fatty degeneration—more frequently occurs in hypertrophied hearts, "and out of the eighty-three

CASE III. *Hypertrophy with Dilatation.*—Private C. C., æt. 35, came under my notice two days only before death, and he was then in such an unpromising condition as induced me to refrain from putting him to the inconvenience of an examination. I had, however, previously ascertained that he had suffered from pneumonia of the right side, and that his heart was feeble and dilated. I accordingly contented myself with stating in the case-book, "that he was admitted in a very restless and suffering condition, that the heart was enlarged and flaccid, and that, in addition to hepatization of the right lung, his kidneys were in an advanced stage of granular (Bright's) degeneration." I added, that "the odds were entirely against him, and that it was easy to foresee that the struggle for life could not be long protracted." I was not far out, for he died, as we anticipated, about 4 P.M. the following evening. On section, the heart was found to weigh 1 lb. 11 oz., and it was enlarged and elongated towards the apex. The openings of the mitral and tricuspid valves were enormously dilated and patulous, their free edges were rough and cartilaginous, and bony spiculæ protruded from them. A large detached fringe of hypertrophied endocardiac membrane flapped quite loosely in the aortic orifice, and nodules of soft cretaceous matter were found studding the surface of the aorta. How, under these circumstances, life could be maintained at all, is a wonder, and this wonder is enhanced by the fact, that at every stroke of the receding current, the fringe referred to above, must have flapped against and almost filled up the aperture of escape. Yet did this dreaded contingency not occur, and general rather than local causes brought about his dissolution.

CASE IV. *Dilatation with Hypertrophy.*—Private J. R., æt. 34, came under my notice for the first time in February 1866, when

cases of this description which he had examined or analyzed," forty-three were found to have that organ increased in size. See his able paper on "Fatty Diseases of the Heart," in the thirty-third volume of the Medico-Chirurgical Society's Transactions, pp. 128-195.

he was described as a diminutive, anxious-looking man, of nervous habit and sanguine temperament; and I learned from him that he had first experienced a sense of uneasiness in the precordia some seven months previously. On examination, the area of cardiac dulness was found to be more extensive than was natural; there was a blowing murmur—with tendency to reduplication of the first sound—heard all over base, but there was no palpitation or intermission, and though recumbency is generally dorsal, he can lie on either side without inconvenience. A combination of citrate of iron and quinine, that was ordered by a colleague, not agreeing with him, was replaced by a mixture of digitalis and soda in an effervescing medium, and every attention was paid to his diet and bowels. On the morning of the 9th of March following, I was surprised to find him suffering from paralysis of the right side—including both arm and leg—and he assured me he felt the usual symptoms of numbness and tingling in both. His face was flushed, he talked flatly, and in a tone that indicated despondency and weakness, and he complained of a sense of weight and giddiness in the head. On inquiring, I found that he had rolled out of bed during the night, and that, being unable to regain his former position, he had to apply for aid to his comrades. Three days afterwards, he could raise his hand to his head, and even stand for a second or two on the affected leg; and his mouth having become slightly " touched " in the meantime, blisters were applied behind the ears, and his bowels were acted on by enemata. He improved somewhat under this treatment, supplemented as it subsequently was with strychnia and mineral acids, but he lost ground as the season advanced and the heat increased, and on the 15th of the following July he complained of a feeling of fulness and choking in the chest, the lips were pale and livid, and the general expression was anxious and desponding. Anasarca soon afterwards supervened, and when the heart's sounds were again examined on the 18th, they were found to be less tumultuous and excited, but more diffused than before, and they ran so much into one another as to be indistinguishable below the nipple. On the upper and inner side of the chest, however, near margin of sternum, and thence upwards towards the clavicle, there is a clear, sharp, ringing interval, and a muffled, rumbling thrill can be detected in the large vessels of the neck. The urine became more scanty as the anasarca increased, and this increase having greatly embarrassed the breathing, he died exhausted on the 25th of the same month—July—after a residence of 123 days under treatment in hospital.

The principal lesions brought to light by a post-mortem were some puffy swelling and œdema of the extremities and abdomen, excessive congestion of the lungs, and very considerable general enlargement of the heart. The last-named organ, whose texture was loose and flabby, weighed 1 lb. 6 oz., and was found, as we anticipated during life, to present unusual combinations of fatty disease in the walls of the left ventricle, and of structural change in the component parts of the mitral valve. The inner surface of the former was lined by a rough opaque fibrous membrane, the result, doubtless, of previous endocarditis, and all the structures entering into the composition of the latter were enlarged or hypertrophied by inflammatory deposit. Dilatation with hypertrophy, though not the most prominent characteristic, was yet clearly traceable throughout, and the altered condition of its cavities unequivocally demonstrated the existence of old-standing valvular obstruction. That this was the primary lesion can scarcely be doubted, and though the other viscera exhibited some evidences of injury, we need not dwell upon these here.

CASE V. *Hypertrophy with Dilatation.*—Private J. H., æt. 35, came under my notice indirectly through the courtesy of a colleague, whom indeed I assisted subsequently in the treatment. On examination by me, a loud systolic bruit was heard all over the cardiac region, but most plainly at midsternum, and in the course of the left carotid. Both carotids, indeed, show undue increase of impulse; the heart's action becomes at times greatly excited, and he frequently complains of a "globus," which, he says, interferes with his powers of deglutition. He has on several occasions fallen down in a faint, and his cough and dyspnœa are very troublesome. Owing to the frequent supervention of fits of faintness, palpitation, and paroxysmal dyspnœa, to which is sometimes added a pain resembling angina pectoris, which extends from the apex in front to the base and spinal column behind, diffusible stimulants are exhibited in large quantities, and brandy, beef-tea, and other support are freely allowed him. The chest is also swathed in poultices or fomentation cloths, and he derives great relief from sucking ice. Under these measures he rallied a little during the first few days, but the relief was only temporary, and a relapse having taken place, he died insensible twenty-one days after admission. On section six hours after death, both lungs were found to be congested, and the heart, greatly hypertrophied, and covered with fat, weighed 1 lb. 14 oz. Both auricles were much dilated and contained several black, semi-organized clots. The walls of both ventricles were thickened, more especially that of the left, the cavity of which was nearly three times its ordinary size, and the auriculo-ventricular opening was enlarged and dilated. The calibre of the aorta was, as we might expect under the circumstances, proportionately dilated, and patches of atheroma, running on towards ossification, were copiously diffused over its free surface. The semilunar valves were rough and thickened; the spleen, gorged with blood, weighed 12 oz.; and the kidneys, covered with fat, weighed each 7½ oz.

CASE VI.—[To save time and economize space, I will abridge here under one heading the notes of three cases which occurred in the hands of a colleague, but which I saw myself during life or inspected after death, and I will do the same in respect of others further on. This abridgment is the less to be deprecated, inasmuch as all the regimental records I have been permitted to consult bear evidence of the same effects, and disclose pathological conditions closely related to, if not absolutely identical with, those revealed within, and any inferences they may suggest can be more appropriately discussed in another place hereafter.]

Private D. L., æt. 21, a pale, delicate-looking lad, who has only passed two years in India, and who was admitted for a gonorrhœa, exhibited feverish symptoms twelve days subsequently, and the pulse rose up to 130 soon afterwards. Except a bruit, of no special character, and which was probably due to a previous rheumatic attack, no visceral disease could be detected, but he complained of headache, and threw his arms about in a state of great restlessness and excitement. He, in short, appeared to be suffering from an attack of acute congestion of the brain or of its membranes, and he died delirious within ten days of his first seizure. On section, a quantity of extravasated blood, which we estimated at two teaspoonfuls, was found lying over a space about an inch square on the right upper surface of the encephalon; there was also a large amount of subarachnoid effusion at the base, and the vessels and substance of the brain were congested. The pericardium was distended with fluid, and the heart weighed 1 lb. 4½ oz. It was much hypertrophied and dilated symmetrically, and its principal valves were irregularly thickened and contracted. Had no examination been made in this case, it is not unlikely but that inflammation or other disease of the brain might have been "returned" as the cause of death.

Sergeant T. G., æt. 39—sixteen years' service, of which three only have been passed in India—was admitted with valve disease of heart and with a puffy face, swollen state of the feet, and short difficult respiration. The pulse indicated aortic regurgitation, and both sounds were accompanied by murmurs. Anasarca subsequently supervened, the heart's sounds became more confused and indistinct; and, exhausted by frequently-recurring and very severe paroxysms of dyspnœa, he died rather suddenly. On section fourteen hours afterwards, the heart was found to weigh 24 oz., and to be hypertrophied on the left side. The edges of the aortic valves were thickened and rough, and incapable of closing that orifice, and the mitral and tricuspid were insufficient or imperfect.

Private P. B., æt. 27, was admitted with aortic valve disease, and, on examining his chest, the officer in charge of him discovered a "loud regurgitant aortic valve murmur." Pneumonia soon afterwards supervened, and doubtless so far aggravated the above as to bring his life to a close twenty-one days after admission. On examination twenty hours afterwards, the lungs were found to be intensely congested, and the heart, "of enormous size," weighed 1 lb. 10 oz. It was both hypertrophied and dilated, and its aortic valves were said to be completely destroyed. The aorta itself was greatly dilated, particularly so towards the right auricle, where a new sacculated quasi-aneurismal pouch existed, and the lining membrane of the whole thoracic aorta was very much roughened by the deposit of bony scales. There was no history of syphilis in either of these cases.

(*To be continued.*)

Part Second.

REVIEWS.

A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By WILLIAM LEISHMAN, M.D., etc., etc. Second Edition. Glasgow: James Maclehose: 1875.

THE early appearance of a second edition of this book is not less gratifying to us than to its author, for it indicates a just appreciation of its merits by the profession, and especially by teachers. A book like this was very much wanted, for our previous text-books had fallen behind. It is the fate of an old book to die and be replaced by the work of a younger man. The time comes when repairs and new editions will not do. A new man, educated in the most recent developments of science, is wanted to give us a new book.

Tyler Smith's very imperfect manual appeared to us, when it was published, an excellent basis for future editions. These accordingly were demanded, but the author did not survive to do the desiderated work. The book now before us, in its second edition, has been more carefully prepared than Smith's, and is more complete; but we would speak of it in the same terms. It forms an excellent basis for future editions; and we hope the thing will not be allowed to grow larger in bulk. The style of the author admits of much beneficial condensation to make room for new matter.

What the new matter is, we shall not here mention in detail. It is ever increasing, and Leishman has shown himself well fitted to digest it, and give it a proper place and prominence in his System. He is very well up to the day in British science, and in much of what is foreign, but not in all; and he has much to add in future editions that is of high import.

If any one critically, with this view, reads the work of Schroeder, he will soon find many of the omissions of Leishman (and also the omissions of Schroeder). We would not have Leishman take these matters from Schroeder, but the omissions indicate a fault somewhere. Leishman gives a good view of British midwifery; but a better text-book would give us a good view of all midwifery, nothing of importance being omitted. Such a production is very rare. A translation, such as that of Schroeder, excellent as it is, does not make good the want indicated. A science does not flourish in one country by transplanting or bringing grafts from another. In each country the science has its own history and mode of growth: and a translation may indicate what is deficient, but the deficiency is not made good thereby. The new matter must be made to grow in and with the old stock. As in politics, so in science. A subversive French revolution ends in confusion. An imported bran-new constitution will last only for a trial.

Our young obstetricians have abundant work to do, and they are no doubt admirably busy. But more workers or more activity is needed. Original work is the best; and of it let us have as much as possible. But for workers who are not of the original kind, there is a copious supply of new matter in Continental work, waiting to be utilized and served up in this country, to contribute to the growth of our excellent British midwifery.

Meantime, we recommend to practitioners, to teachers, and to students, this volume of Dr Leishman's. The improvements on the first edition are conspicuous, and contribute much to its acceptability.

Sex in Industry: A Plea for the Working Girl. By AZEL AMES, Jun., M.D., Member of Massachusetts Medical Society; Honorary Member California Medical Society; Special Commissioner of Investigation, Massachusetts Bureau of Statistics of Labour, etc. Boston: 1875.

THE intention of this little work is to prove that women are not so strong as men; and if the public do not tire of Mr J. S. Mill and his adherents, it will be soon needful to write books to show that men are as strong as women. In truth, it shows some moral courage in Dr Ames to put his name to his book, and perhaps it is because he is a little apprehensive of the consequences that he tries to sweeten his disagreeable truths with a few honied sentences.

The fact is, it has for several generations been so much the fashion in history, travels, and light literature, to say things flattering and pleasing to women, that few writers have now the courage to utter anything like a hard truth when treating of the subject.

It is singular, considering the great social influence which women possess, and the large amount of property in their hands, that attempts were not made at an earlier date to make something of flattering them as a sex, to inflame them with a sense of their wrongs, and to arouse discontent and jealousy between men and women. We have had demagogues from the first dawn of history, but the gynagogue has only appeared to any purpose with this generation. It is true, at the commencement of this century, we had Shelley in England, and St Simon in France, who may be termed the beginners of the movement; but if we look to the results, their assistance to women's rights went no further than their both putting away their own wives when they were tired of them. There is now, however, a very active party who make it their avowed object to alter the relation between men and women, to efface the existence of sex in education and law, and whose existence ought all the more to be borne in mind, that they are anxious to keep the main question wrapped up, and raise a series of smaller issues, such as, Ought women to have votes? Are women not to be allowed to study medicine, and that in the same schools as men? Ought married women not to have the entire control of their property? In reality, the views of their leaders are much more thoroughgoing than many of them are willing to make public. Their action on any one of the innumerable points where men and women have relations, are influenced by their theories, and so in treating any part of the question, it is well to remember that it is a part of an important whole!

Dr Azel Ames has been commissioned by the chief of the Bureau of Statistics, about two years ago, to make inquiries as to the condition of homes and employments of working-people, whereby their health might be unfavourably affected; and this little book gives the result of his observations and inquiries on the effects of industries upon female operatives.

Although there is a great talk in the newspapers about the necessity of getting new sources of employment for women, it may be fairly said that never since the dawn of time were there more sources of employment for the weaker sex than now. The wonderful adaptations of machinery have rendered muscular strength of much less importance in manufactures. A very large number of women thus find employment of an unaccustomed character; and it is an inquiry worthy of serious attention what are the effects, moral and physical, of these great changes. The moral effects do not so nearly concern us as physicians, but from the evidence given in this book, it would appear that the employments in which many women are engaged, have an unfortunate effect upon their growth and health. By being sent to work at an early age in factories, puberty is hastened, while the healthy nutrition of the body is interrupted, and the delicate frame, prematurely exhausted, becomes subject to a host of diseases, uterine, spinal, and tubercular. After illustrating by a quotation from Dr West the necessity of taking precautions till the habit of regularly healthy menstruation is established, Dr Ames observes—"Until this faculty shall have been established and confirmed in its completeness, there can be no moral—there should be no legal—right of a parent or guardian to permit, or of an employer to secure, the labour of the immature frame in occupations that in themselves or their surroundings are inimical to the due development of the individual. If employed, it should be in pursuits free from tendencies to the repression of the sexual principle and the almost purely animal growth which the early years of life seem intended to expressly accomplish. Labours that demand full measures of strength and activity, physical or mental, must properly seek them in those who have passed this climacteric."

Dr Ames goes over the result of his observations in many fields of female employment, such as textile manufactures, working at sewing-machines, type-setting, basket-making, and shows that in in all these, continuous and exhausting labour, especially when performed standing or in constrained positions, is frequently the cause of disease in female operatives. "Thousands of children," he says, "more than half of them girls, are to-day employed in the various industries of this State, undermining in a great proportion of cases that physical vigour which alone will serve as a sound basis for the moral, mental, and material prosperity of a nation." The author is inclined to think that there is a progressive decline and deterioration in female organization in New England within fifty or a hundred years. Formerly there was more muscle, a greater fulness of form and better development of the internal organs, while the brain and nervous system were not so continuously or excessively taxed. The author believes that the State should interpose to control employments which threaten to exhaust the future energies and health of the people, by making restrictions in the hours of labour, and preventing females being employed in exhausting occupations at a too early age. Proposals of this kind are combated by the advocates of women's rights, as was done by Professor Fawcett this year in the House of Commons, when a bill was brought in to curtail the hours during which women were worked in manufactories. Maintaining that women are the equals of men, and can hold their own against them in an open market, they think that women should be allowed to work or overwork themselves as they choose. So far from believing that the peculiar sphere of women lies at home, they try to excite a rivalry against men, push them into trades *quæ maribus solum tribuuntur*, openly hint or privately teach contrivances by which woman may escape her peculiar function, and what Mr Mill calls the "intolerable drudgery" of the nursery.

There is a striking illustration taken from Professor Clarke's work, "Sex in Education," of the mischief flowing from the attempt to rival or imitate men in their manner of working. Miss C., a book-keeper in a mercantile house, believed in doing her work in a man's way, "infected by the not uncommon notion that womanliness means manliness. Moreover, she would not, or could not, make any more allowance for the periodicity of her organization than for the shape of her skeleton. When about twenty years of age, perhaps a year or so older, she applied to me for advice in consequence of neuralgia, backache, menorrhagia, leucorrhœa, and general debility. She was anæmic, and looked pale, careworn, and anxious.

"There was no evidence of any local organic affection of the pelvic organs. 'Get a woman's periodical remission from labour, if intermission is impossible, and do your work in a woman's way, not copying a man's fashion, and you will need very little apothecary's stuff,' was the advice she received. 'I *must* go on as I am doing,' was her answer. She tried iron, sitz-baths, and the like: of course they were of no avail. Latterly I have lost sight of her, and, from her appearance at her last visit to me, presume she has gone to a world where backache, and male and female skeletons, are unknown."

Most people are agreed that the State can very properly see that workshops are properly ventilated, and not overcrowded; prohibit masters employing women in occupations unfitted for their muscular system, such as working in mines; and our Parliament is disposed to make regulations to diminish the length of their labour in factories; but it would be very difficult to carry out the following proposals suggested by Dr Ames:—

"That the employment at labour of any girl under fifteen years of age should not be allowed.

"That the employment of girls of other ages—and women generally—at employments unsuited to their sex should not be suffered (such employments being determined by a council of salubrity, as in France, composed of those most eminently fit for their high commission).

"That, in such employments as women should be admitted to, they should be permitted a 'periodical absence,' without pecuniary loss, for such time as might be just and necessary.

"That in employments where women should be admitted, and which require high degrees of mental concentration, with physical energy, additional vacations of sufficient extent should be the right of the employée."

If women must live by their labour, and we understand American girls have no objections to get married, such extensive restrictions are quite impracticable. Dr Ames admits that the very moderate restrictions already made by law have, in the state of Massachusetts, been completely evaded. It appears to us that the evil in a great measure is owing to a state of opinion which is getting more and more distorted every year. The old fashion in our country amongst the middle classes was that the sons should go out to work, and the daughters should remain in the house, not idle, but not hard worked, until they were married, or arrived at years of maturity.

The duty of the men to help and maintain the females of the family was not forgotten. There is no question that such arrangements gave us beautiful and healthy women, both virtuous and intelligent, every way fitted to be the mothers of a great people. The women of the poorer classes went out to service—a form of work evidently compatible with vigorous health. In the United States, especially in the north, the women are jealous of their independence, and unyielding in their disposition; marriages are often unhappy; divorces frequent; home ties are weaker than anywhere else. The children have little reverence for the parental authority, and leave their father's house at an early age. The women go to work when very young; however poor they may be, they disdain to be domestic servants, and crowd into factories, where they are hard-worked, and, as Dr Ames shows us, often lose their health. Married women, unless rich, cannot get servants or helps; and some of them escape the burden of a large family by nefarious devices, which have been denounced by American physicians, though it appears that there is a class of practitioners who are willing to lend their aid. In evils of this kind lies the danger of the grand fabric of American democracy.

It seems to us that Dr Ames insists too exclusively upon "the peculiar sexual principle" as the sole difference between men and women. We believe that women are dissimilar to men, not only in sexual characteristics, but in many other modifications of structure —in the chest as well as in the abdomen, in the form of the skull as well as in that of the pelvis; and that the collective result of these differences must make women unfit for the rough outer life of the world. Women, too, are different from men both in moral constitution and in mental power. Indeed, no sophist of any note insists that they are not. The utmost they say is, that, if women were educated as they recommend, and society arranged in a new way, women *would* approach nearer, or very near, to men. Well, if such experiments are to be tried, let them be tried in America, where Mrs Woodhull and Brigham Young have already been at work.

Once more, to quote Dr Ames:—"Extremes meet. The demands of savage barbarity held women in an unsexing servitude. The abnormalities of our civilization are demanding anew of women a kind and degree of labour similarly militant against sex." And we may add, our gynagogues wish that the man should cease to be the head of the family. They hold that the sanctions of morals, of law, and of opinion, which support him in this position, should be abolished, and that the wife, or analogue to a wife, should struggle for the equality or mastery if she can gain it; and, as quarrels may possibly arise even in the new moral world, that divorce should be made so easy that marriage could be little more than voluntary cohabitation. Here again extremes meet, and we approach barbarism.

With the exception of a few remarks at the beginning and end of the book, the author keeps very close to his immediate subject. Not only has he carefully studied the facts himself, but he has made good use of the recorded labours of others. His remarks show a ripe acquaintance with hygiene; and, altogether, his book is a useful contribution to an important inquiry, on which a Parliamentary Commission is at present engaged.

Das Chinin nach den Neuern Pharmakologischen Arbeiten, Dargestellt. Von C. BINZ, Dr der Medicin und Ord. Professor zu Bonn. Berlin: August Hirschwald: 1875.

THIS is a very interesting and exhaustive treatise on the therapeutics of quinine. The book contains also a record of some original and important experiments on the therapeutic action of quinine in blood-poisoning and typhoid fever. Binz found from experiments performed by himself and others, that after injecting putrid matters into dogs, and afterwards injecting quinine, a fatal result is often prevented; and even when death does take place, it is considerably delayed. The temperature is lowered in all cases. At Professor Binz's suggestion Socin treated great numbers of patients during the Franco-Prussian war with quinine (the muriate specially), in doses of 90 to 100 grs. daily. Socin recommends the use of alcohol in addition to the use of quinine. Binz specially recommends quinine in typhoid fever (abdominal typhus), and quotes Liebermeister as saying, that if he had to choose between the use of cold applications and quinine in a given case, he would choose the latter. He recommends the use of the muriate of quinine in preference to the sulphate, as less likely to cause irritation of the alimentary canal and bloody stools. He recommends Kerner's chininum amorphum muriaticum. This dissolves in an equal quantity of water without any sediment. We can highly recommend Binz's work.

Syphilitic Lesions of the Osseous System in Infants and Young Children. By R. W. TAYLOR, M.D. New York: William Wood and Co.: 1875.

DR TAYLOR deserves the thanks of the profession for this able and exhaustive treatise. It fills a gap in the literature of the subject in the English language, Continental writers having gone ahead in this, as in many other branches of syphilography. The illustrative cases are given with great minuteness and care, and perhaps this minuteness of description is carried to too great an extent all through the book.

Lectures on Syphilis, and on some Forms of Local Disease affecting principally the Organs of Generation. By HENRY LEE. London: J. and A. Churchill, New Burlington Street: 1875.

THIS volume is composed of the Hunterian and Lettsomian lectures, ten in number, and is designed to illustrate some of Hunter's doctrines by the light of modern experience.

The subject of inoculation of syphilis by means of syphilitic blood, and the secretions from secondary syphilis, is fully entered into in the first two lectures, and the historical cases in proof of this are given in detail.

The importance of some of the information given by Mr Lee, especially in reference to legislative medicine, cannot be overestimated. As an illustration of the doubtful benefits conferred on society by the Contagious Diseases Acts, and as one example among many of the almost insurmountable difficulties in successfully carrying out these Acts, we note the following passage:—"I have seen a number of patients who fancied that they were safe in having intercourse with women who had recently been examined in 'protected districts,' and who, nevertheless, have had the train of symptoms I have described. And, in truth, if a woman has no objective signs of syphilis, except a vaginal or uterine discharge, and will take the trouble to wash herself before being examined, it would be exceedingly difficult, if not impossible, for a surgeon to say whether she were syphilitic or not."

Again, in another lecture, when speaking of the difficulty in making a differential diagnosis of vaginal discharges, this passage occurs:—"Surely there is here matter for the serious consideration of any medical man who undertakes to advise Her Majesty's Ministers with respect to the working of the Contagious Diseases Acts; and especially with regard to the extension of those Acts to the civil population. It is not in any way my wish or intention here to offer an opinion on the propriety of the Acts referred to; but as the responsibility of the principles upon which those Acts are framed will be thrown ultimately upon the medical profession, and as the practical application of these Acts will involve the personal responsibility of medical men, I am somewhat jealous for the future honour of our profession, and anxious that any opinions and advice given by us to the Legislature, should stand the test of time; and, in order that they may do so, that they should be established upon a really scientific basis." We cordially endorse Mr Lee's views on this subject, and trust that, by aiding in their dissemination, we may assist in procuring legislation for the prevention of contagious diseases, having a more scientific foundation than that of the present enactments.

Although Mr Lee does not apparently take the Hutchinsonian view that mercury is an antidote to the syphilitic virus, still his treatment of the disease is essentially mercurial. One weak point in the mercurial treatment seems to be, that in bad cases of syphilis, "mercury should be administered with great caution," or even withheld altogether. Surely, if the drug is worth anything, it ought to show its pre-eminence in cases of a bad type with a suppurative tendency.

Mr Lee advocates his calomel bath as being the safest and best mode of administering mercury in syphilis. A great objection to the bath treatment is, the "short commons" of fresh air and cold water the patients are allowed, thus—"Fresh air has long been known as the antidote to mercurial action, and dabbling in water, either hot or cold, not only washes the calomel off the skin, but its evaporation chills the surface of the body, and certainly, according to my experience, prevents the full action of the bath as I have described it."

To have syphilis is bad enough; but to have it, minus fresh air and a cold tub in the morning, would be simply unbearable.

The effect of this kind of mercurial treatment is to make invalids of patients, who, in nine cases out of ten, might go about their usual avocations, wash and breathe fresh air like their neighbours, during the whole course of the disease.

Mr Lee's remarks with reference to the specific enlargement of the glands in syphilis are important and sound; he says—"On examining the inguinal glands at any one period, a surgeon might, from accidental circumstances, be deceived as to their nature; but if their origin and progress is watched, they afford, as I believe, a correct indication of the condition of the patient's constitution as regards syphilitic disease; and I believe that no patient can be said to be free from syphilis, or fit to marry, as long as they remain."

The two last chapters treat respectively of prostatic discharges and local diseases.

This book is not meant to give a minute description of the primary and constitutional lesions of syphilis; it is, rather, an able exposition of the general laws which govern the evolution and progress of the disease, as well as giving careful directions for treatment by the modern mercurial method.

Lessons on Prescriptions and the Art of Prescribing. By W. Handsel Griffiths, L.R.C.P. and S.E., Professor of Chemistry in the Ledwich School of Medicine, Dublin, etc. London: Macmillan and Co.: 1875.

The subjects treated of in this volume are of paramount importance to all students of medicine. It is of the utmost consequence, not only to prescribe the best medicines, but also to prescribe them in the best forms. The subject of prescription-writing is sadly neglected by many students, and the consequence is, that physicians frequently mar the usefulness of their prescriptions by combining substances which, however excellent in themselves separately, are useless or something worse when contained in the same mixture. The object of Dr Griffiths in these "lessons" is to afford the student such information as will enable him to prescribe accurately and well. The book contains *nine* chapters or "lessons," all bearing on the "Art of Prescribing," and no one can read carefully this interesting little volume without deriving benefit from its perusal.

We could have liked if Dr Griffiths, in his lessons on the Grammatical Construction of Prescriptions, had taught the student to use the accusative instead of the genitive before the preposition *ad;* for example, Aquam Menthæ Piperitæ ad ℥viii. is much better Latin than "Aquæ Menthæ Piperitæ ad ℥viii." (page 93). Whatever may be said about the construction of the above, and similar phrases, there can be no doubt about the construction of the following prescription on page 129: "Tere simul et gradatim adde Infusi Caryophylli ad ℥i." This should have been *Infusum.* There are other mistakes of minor importance contained in the volume; but notwithstanding these "slips of the pen," the volume is calculated to be of much use to students and practitioners. There are many excellent advices to prescribers which we might quote, but we have not sufficient space. Well does Dr Griffiths remark—"Be on your guard against falling into the error of prescribing substances which possess essentially *opposite therapeutic properties, and which are medicinally inconsistent or physiologically incompatible.*" We wish the book a wide circulation, and heartily join with the author in his concluding advice to the students: "Let me advise you to lose no opportunity of practical work in the compounding laboratory, and, above all things, to habituate yourselves to the practice of devising original formulæ."

Commentary on the British Pharmacopœia. By WALTER G. SMITH, M.D., Dublin. London: Smith, Elder, and Co.: 1875.

THE author states in his preface that the "object of the present work is to supply practitioners and students with an explanatory commentary on the drugs and preparations of the British Pharmacopœia." This "Commentary" is a valuable addition to our text-books on materia medica. The book contains an excellent description of the various substances contained in the British Pharmacopœia. Their characters and tests are well given, and their actions and uses are in general concise and accurate. The description of the various plants used in medicine is given in an interesting manner, and the chemical analysis of the various substances is accurately stated.

Being, like the British Pharmacopœia, arranged alphabetically, the book is in consequence not very suitable as a text-book for the student attending a course of systematic lectures on materia medica; but as a work of reference it will form a valuable addition to the library of any student or medical practitioner. We wish the book a wide circulation.

Tinnitus Aurium: A Consideration of the Causes upon which it depends, and an Attempt to Explain its Production in accordance with Physical Principles. By SAMUEL THEOBALD, M.D., Surgeon to the Baltimore Charity Eye and Ear Dispensary.

THIS pamphlet of twelve to thirteen pages is a reprint from the Transactions of the Medical and Chirurgical Faculty of Maryland, April 1875. Previous authors on diseases of the ear have been puzzled to find a *cause* for that most troublesome of ear complaints, each new author finding the true *cause*, or attempting to do so, and sneering at the *cause* of his predecessor, to be again laughed at in his turn. Galen in his time thought that tinnitus aurium was due in some cases to exhalations from the stomach, and in others to increased sensitiveness of the ears. Hinton, our most recent author, frankly confesses that "it would seem better that the causes of tinnitus should be held as yet a very open question." Tröltsch says, "The subjective sounds in the ears are an expression of an irritation of the auditory nerve, whether of its trunk or its terminal expansion in the labyrinth;" but Dr Theobald is more explicit, and limits it to an irritation of the terminal expansion only—"that tinnitus is invariably the expression of an *excitation of the terminal or percipient elements of the auditory nerve.*" Certa[illegible]tive sounds, exceptional in character, of a pulsating, [illegible]wing or hissing nature, have long been [illegible]led as [illegible]nds, having their origin in the larger [illegible] whic[illegible] neighbourhood of the temporal bone; these [illegible] ob[illegible] "to the existence of *vibrations excited in* [illegible]*els of the labyrinth by the friction attending* [illegible]*ood,* which are capable of imparting to the [illegible] the terminal filaments of the [illegible] character to those which are [illegible] stapes, and hence, like them, [illegible]on of sound." To support his [illegible] thus excited, our author states [illegible]n the laws of acoustics, and that [illegible]nces of this phenomenon actually [illegible] such as aneurismal and anæmic [illegible] and certain cardiac sounds. The [illegible] is explained by the peculiar relation [illegible] internal ear to the auditory nerve.

The tinnitus, so constantly associated with deafness arising or that may have arisen from catarrh of the middle ear, is explained, in the first case, from the interference with the circulation, and, secondly, from the thickening that has taken place preventing the normal escape outwards of the then-disturbed vascular supply of the parts. This he supports by the familiar example of the vibrating tuning-fork on the apex, and then stopping the one meatus externus, when the sound is almost entirely heard in the stopped ear alone. The strength of the theory depends upon its competency to account for phenomena, and upon these grounds our author rests the claims to consideration of the vascular theory of tinnitus. Along with Dr Theobald, we consider it a step in the right direction.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LV.—MEETING I.

Wednesday, 10*th November*.—Dr HALDANE, *President, in the Chair*.

I. *Dr John Duncan* read a paper on THE TREATMENT OF NÆVUS, which will appear in a future number.

The President observed that the Society was greatly indebted to Dr Duncan for his excellent paper. He especially admired the account given of the "natural history" of the disease, the description of the treatment, and the rules deduced from the former as to the propriety of interference. Dr Duncan had given a choice of treatment, and had pointed out clearly the cases in which he believed different means should be employed.

Mr Bell said that as nævus was a surgical and not a medical disease, the physicians present did not therefore commence the discussion. He admired the paper for the mastery of the subject displayed in it, the valuable experience given, and the brief manner in which the whole matter was put. The result of his own experience, not so extensive as that of Dr Duncan, was the same in regard to the relative value of the various modes of treatment. Ligature, he thought, should be used in almost all cases. The cure was effectual and the scar small, if the ligature was rightly applied and embraced the subcutaneous tissue more than the skin. In a case under his care of a young lady with a small nævus under the eye about the size of a fourpenny-bit, he applied the ligature, as the parents were averse to any long course of treatment or to cutting. The case did very well, and six months after the scar could hardly be found. This was a case, however, in which Dr

Duncan would not advise ligature. In regard to the treatment by electrolysis, Dr Duncan could truly say "Cujus pars magna fui," as he was certainly the greatest authority on the subject. Further, he was exceedingly kind to all his colleagues in giving them the benefit of his advice in such cases. Certainly all he himself knew on the subject of the treatment by electrolysis was due to Dr Duncan. He felt sure that the members would be still more pleased with the paper when in a printed form.

Mr Chiene thought that Dr Duncan's remarks on the use of the elastic ligature were too short. The suggestions as to the preliminary use of a cord to keep the ligature from slipping, and the employment of a button to prevent the knot of the ligature cutting the skin, were most valuable; and he only regretted that that part of the subject had not been more fully gone into, as, as far as he knew, surgeons owed to Dr Duncan's ingenuity this important improvement in the treatment of nævus.

Dr Balfour, although he supposed he knew little about nævus, had yet listened with great pleasure to the paper. The logical deduction as to the nature of the treatment, from a consideration of the "natural history" of nævus, would have delighted a former President of their Society. He thought that, as this was the first occasion on which the Society had met since the death of Professor Hughes Bennett, they should record their sense of the great loss they had sustained by his removal from amongst them.

II. *Dr Craig* then read a paper on THE EXTERNAL USES OF THE HYDRATE OF CHLORAL, which will appear in a future number.

The President considered that the Society was much indebted to Dr Craig for his important practical paper. Much credit was also due to him for the experiments he had performed. The specimens exhibited showed the advantages of chloral hydrate in not injuring the tissues, nor removing the colour. The specimens of fish were exceedingly well preserved, and Dr Watson's letter showed the advantages of chloral as an external dressing in wounds.

Dr John Duncan remarked on the value of the paper from a practical point of view. His own experience of chloral hydrate in regard to wounds might be interesting to the members. Having seen Dr Watson use measures for the application of chloral, he tried it in the same way, as he thought it might prove less irritating than carbolic acid. He found, however, that with lint prepared by Dr Watson's method, the result was not satisfactory as far as the antiseptic management of the wound was concerned. In one or two cases the discharge was not sweet. He, therefore, in a case of amputation at the thigh, used lint soaked in a saturated solution, and employed a 20-per-cent. spray. This latter was found exceedingly pungent both by himself and the dressers, and produced sneezing. The lint was made to envelop the limb as much as an ordinary antiseptic gauze dressing would.

The patient appeared very comfortable after the operation. In the evening he was drowsy, and next morning he was completely narcotized, and continued so for twenty-four hours. He certainly felt extremely alarmed at this. Stimulants and strychnia were therefore administered, and the patient ultimately came round. The case, however, gave him a great fright. He therefore believed, that if the chloral was used strong enough for antiseptic purposes, it acted as a narcotic, and if the strength did not ensure this, the chloral should not be used, as it did more harm than good from irritation.

Dr Craig had always found it remove putrescence in the cases he had tried. He had, however, no experience of its use in major operations.

III. *Dr Craig* then read a paper on JABORANDI, which also will appear in a future number.

The President remarked on the interest of the communication. The plant, so much spoken about, was certainly a remarkable one. It, however, had been so lately introduced that its therapeutics could not be judged of yet.

Dr Brakenridge stated, that his experience enabled him to confirm Dr Craig's remarks as to jaborandi in pleuritic effusion. In one case a full dose of the drug removed the effusion; and when it again recurred, the same effect was produced by a second dose. He had at present two cases under treatment with this drug in the Infirmary. The first was a case of post-scarlatinal nephritis, in which decided benefit resulted from the daily administration, now for ten days, of thirty grains of jaborandi in small divided doses. The second case was still more important. It was in a boy, æt. 14, suffering from post-scarlatinal dropsy, where there was anasarca of face, thorax, and abdomen, considerable ascites, and a little albumen in the urine. Digitalis, purgatives, and local warm applications failed, so that on the sixth day the albumen in the urine was increased, and the boy was breathless from œdema of the lungs. Convulsions set in, and from the afternoon to the forenoon he had twenty-one fits. Dry-cupping, and digitalis given by the rectum, had no effect. Ten grains of jaborandi powder were given, followed by five grains every two hours, till thirty grains in all had been taken. The result was gentle perspiration, slight diarrhœa, and salivation. The anasarca gradually diminished, until it disappeared. The drug was continued for fourteen days, and now the boy was quite well. It was further remarkable, that the urine steadily increased from twenty to sixty-seven ounces. On intermitting the drug, the amount fell to thirty-five ounces, and again rose on resuming its use. In regard to the active principle, pilocarpine was certainly not the only one. There were probably more than one. He therefore gave the powder, and without any disagreeable result following. In regard to the physiological action of jaborandi, it was antagonistic to belladonna. Both acted on the terminations of the true secretory fibres of the chorda tympani, and not on its vaso-inhibitory fibres. Ringer attributes the local effect of belladonna on the mamma to its acting on the nerve termination. He therefore would throw out the hint to the obstetric members present that possibly jaborandi might have a local effect in stimulating secretion of milk.

Dr Muirhead wished to give his experience as to jaborandi . In a case of dropsy of cardiac and renal origin, in the Infirmary, he gave the infusion of the drug without any effect. As the special preparation of the drug might have been inefficient, another infusion was tried, but with the same result—no effect. Ten and twenty grain doses of the powder, thrice daily, produced only warmth of skin, even when the amount was increased to thirty grains. The jaborandi had therefore to be given up, as the patient complained of the nauseousness of the drug. Elaterium was then administered with a good result. He had also tried it in other two cases of dropsy without any benefit. In no case was the physiological effect of the drug obtained.

Dr Craig doubted if the jaborandi used by Dr Muirhead was genuine, the more especially, as no information could be given as to whether or not it possessed the characteristic odour, and other physical properties of jaborandi.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXIV.—MEETING XI.

14th July 1875.—Dr Matthews Duncan, *President, in the Chair.*

I. *Dr Wilson* showed a PLACENTA from a case of partial placenta prævia. The patient was within a fortnight of her full time.

II. *Professor Simpson* showed TWO POLYPI. The one, a simple polypus, removed by the ecraseur. The second one was from a patient who had been sent to him as suffering from cancer of the uterus. On examination, the vagina was found filled with a sloughing mass, and there was a quantity of stinking discharge. The patient was very anæmic, and her look was very like that of a subject of cancer. The tumour was removed by twisting, and was with difficulty extracted from the vagina after separation. No hæmorrhage at the time. The patient did well at first, but died suddenly the following afternoon. There was no blood found in the vagina or peritoneum; the heart was soft and flabby; the fatal issue, which was quite unexpected, may be put down to shock after the operation.

III. *Dr Rattray* read the following note on a case of HYPOGASTRIC FISTULA, etc.

Mrs M., a short and stout woman, whose age is 39, has enjoyed excellent health, except that she suffered occasionally from sore throat. Has had four children, all living and well. In 1871 her mother died of cancer of the womb, aged 52. Nine years ago she had a sister who died of liver and stomach disease, with a doubtful history of "uterine disease." Seventeen years ago Mrs M. observed a small swelling appear below the navel, which came on shortly after lifting a tub, and has increased in size. Mrs M. takes simple food, but has had no motion *per anum* since 1st June; but a constant yellowish-coloured discharge, without smell, is coming away from the fistulous aperture in the hypogastric region.

IV. *Dr Matthews Duncan* exhibited some SPECULA FOR EXAMINING THE FEMALE BLADDER, of various sizes, and stated that he had recently been paying renewed attention to diseases of the bladder, especially chronic cystitis. With a view to the thorough examination of the organ, he continued to find the sound, used as he had formerly described, very advantageous; showing the size, hardness, and tenderness of the diseased viscus. Recently he had repeatedly rapidly dilated the urethra to a large degree in different cases, and had found this operation give relief to the cystitic symptoms. Through the urethra so dilated, or as dilated by Simon's vulcanite tubes, the interior of the urethra and bladder could be very indistinctly seen. With a view to its thorough visual inspection, he now used common glass specula with internal mirror surface, such as he now exhibited. They were of considerable size, as of ¾ inch in diameter or larger, and showed the inside of the organ as well as similar but larger specula showed the vagina and cervix uteri. For facility of introduction into the dilated urethra, such specula should be bevelled to a blunt point, as is generally done with vaginal specula. The whole operation of dilating and examining the bladder, exclusive of the use of chloroformization, does not take more than five minutes.

V. *Dr James Cumming* read a paper on THE UTERINE SOUFFLE AND THE FŒTAL HEART, which appeared in the Numbers of this Journal for September, October, and November.

Dr Gordon said that the uterine sound can be heard at an earlier period than the fœtal heart—the exact period varying very much.

Dr Duncan remarked that Dr Cumming's paper was an important one. The only way of criticising it would be to show a large collection of cases contravening or supporting Dr C.'s views. He thought it would turn out that the heavier the child became the slower would its pulse be, and a relation be shown to exist between the pulse and pound weight. The investigation should not stop at the time of birth, but might be carried on for some months after birth, and the same relation might be shown to exist then. It would be an interesting question to determine when the pulse reaches its ordinary adult rate.

Dr Cumming would try to follow out the subject, but it was surrounded with very considerable difficulties in private practice, and to any one not connected with a maternity hospital.

VI. *Dr Milne* read a paper entitled, SOME REMARKS ON OBSTETRIC THERAPEUTICS.

Dr Forbes mentioned that, in 1866, he obtained some specimens of ergot from London and Germany, but that in a number of cases in which he had used it during that year he had failed to obtain any result.

Dr Rattray agreed with Dr Milne in his estimate of chloral, but was surprised he had made no mention of bromide of potash, which he had found most useful in the treatment of convulsions in children. The sickness of pregnancy he had treated successfully with nitrate of silver in 1-10th grain doses; and he never went to a midwifery case without taking ergot along with him.

Dr Gordon thought ergot was sometimes a "pulsus ad mortem," particularly after the liquor amnii had drained off, and the uterus was closely grasping the body of the child.

Dr Burn had used ergot most extensively, but had never seen it do any harm.

Dr Wilson had injected ergotine in one very severe case of flooding, with excellent and instant results.

Dr Young remarked that he had lately read of a distinguished practitioner who had given a large dose of ergot in a first case. He found the insertion of a large male soft catheter was the best means of inducing premature labour.

Dr Murray had found great benefit from the use of chloral in cases of puerperal convulsions. In two cases in which he had used it, the fits stopped instantly.

Dr Milne made a short reply.

Part Fourth.

PERISCOPE.

KELSCH. *Pathological Anatomy of Endemic Malarial Fevers.*—The periscope has previously chronicled some of the more important observations on the condition of the blood in different maladies, made by means of Malassez's discovery of a method by which the blood globules, in a given quantity of blood, can be counted under the microscope. In the *Archives de Physiologie*, No. 5, 1875, Professor Kelsch, of the military hospital Val-de-Grâce, gives an account of a study of the changes found in the blood of patients suffering from malarial fever, made by means of this very valuable method.

The conclusions arrived at are, that in this fever there is—(1) A diminution in the number of the cellular elements of the blood; (2) An augmentation in the size of the red globules; (3) A development of a black pigment which does not enter into the normal composition of the fluid. The observations extend over three classes of cases—simple fevers, pernicious (malignant) fevers, and cases of cachexia.

As an instance of the method of observation, the following case is translated entire:—

OBS. 1.—F., æt. 23, was 21 months in Africa. Had fever for the first time in the middle of August 1874. Had three attacks of quotidian ague. On the 24th August, was admitted into the hospital for an organic affection of the heart. The fever relapsed in the hospital on 2d September; paroxysm severe between 11 A.M. and 3 P.M. 3d September, morning, free from fever; red globules, 4,273,240 in a millimetre cube. 10 A.M., rigors followed by hot stage. 3 P.M., pulse 120; temperature 40·2° (Centig.); red globules 3,441,160. 4th September, morning, pulse 96; temperature 37°; red globules 3,209,724; sulphate of quinine in frequent doses. There are no more paroxysms. Dischaged the 25th. In twenty-four hours this patient lost more than a million of globules per millimetre cube.

In cases of prolonged fever, and in cachectic cases, the loss was much greater. Professor Kelsch states, *en résumé*, that when the variations in the number of globules in a vigorous man are followed from the first paroxysm to the stage of profound anemia, it is found —(1) That the anemia comes on very rapidly. In less than a month the globules fall from five millions to a million and a half or less per millimetre cube; (2) That there are three stages in the numerical variations of the red globules, which correspond with tolerable accuracy to the changes in the fever, as observed clinically. A first and short one, in which the globular deficit, exceedingly rapid, is reckoned by several hundred thousands daily. It corresponds to the initial stage of the fever, when there are acute febrile symptoms of more or less gravity, which are continued or remittent.

A second, which lasts longer than the first, during which the deficit for each paroxysm becomes less. The fever is still severe, but the intermitting type (quotidian or tertian) has taken the place of the remittent. During these two first stages the globules have continued to decrease in number.

Finally, a third, in which the number of globules ceases to fall. It oscillates at first for some time around a minimum. The blood still loses under the influence of the paroxysm, but the losses are less marked than in the two first periods, and are compensated by the salutary influence of periods free from fever, during which the globules are regenerated. This regeneration seldom takes place during the two preceding stages. Clinically, this last phase is marked by isolated attacks, between which there are longer or shorter periods, during which there is no fever.

Professor Kelsch further gives a number of measurements which show that the red globules increase in size; and that in malignant cases white corpuscles are observed, containing masses of pigment.

W. **Krause.** *Allantois in the Human Fœtus.*—Krause gives a drawing of a human ovum of about the fourth week, from which it appears, that at this stage of development an allantois exists as a well-developed vesicle. It has been hitherto believed, that in man the allantois is never seen in bladder form.—From *Centralblatt*, No. 46, 1875.

B. **Küssner.** *Contributions to the Knowledge of Heart Murmurs from Extraneous Causes.* — *Deutsch. Arch. f. Klin. Med.*; xvi.—Küssner describes murmurs which are heard over the region of the heart, and may be mistaken for endo- or peri- cardial murmurs, although the heart is quite healthy, the cause of their existence being found in neighbouring organs. Roughness of the surfaces of the pleuræ in the neighbourhood of the pericardium can give rise to friction sounds, which are partly dependent on the heart's movements, and perfectly resemble pericardial friction sounds. It is easy to understand how under these circumstances the surfaces of the pleuræ can be rubbed against each other by the movements of the heart. The diagnosis as to whether the murmur is pericardial or pleural, may be impossible. It is important to make out that the murmur is not only dependent on the heart's contractions, but also on the respiratory movements.

Other murmurs, which can easily be mistaken for endocardial murmurs, have their origin within the lung parenchyma. They are sometimes aspiratory murmurs, produced by the parts of the lung adjoining the heart, stretching during systole to fill up the void left by the heart's contraction; sometimes they are murmurs produced by compression of the part of the lung lying over the heart when the latter is distended. In this case the thin border of the left lung which overlaps the apex of the heart is the seat of the murmur.

These murmurs have sometimes a soft and sometimes a rubbing character, and in many cases resemble a crepitating râle sound. They are not constantly present, and can often only be heard for a short time. The respiration exercises on their existence and their quality an unmistakable influence, as they are differently heard during in- and ex- piration.—*From Centralblatt*, No. 44, 1875.

P. **Finkel.** *On the Dysmenorrhœal Membrane.*—*Virchow's Archives*, lxiii.—The author examined seven dysmenorrheal membranes from four different women, some of whom had passed similar structures before marriage, and some of whom after marriage passed them regularly, even when they practised strict abstention from coitus. The membranes were more or less unmistakable casts of the uterus, and had sometimes on their external surface small fibrinous villi. They were formed either by the entire mucous membrane, with glands, or only by its upper surface, and consisted of a mixture of glands, vessels, reticular connective tissue, granulation-cells, and morsels of fibrine, these constituent elements being always separated from each other, and filled by large masses of blood. They seemed more or less waxy and swollen, and on iodine being added gave a red-brown colour, which was mostly changed into green and violet by the addition of sulphuric acid. The uterus was displaced in all the cases, and was generally enlarged.

The author considers the affection an endometritis, which is characterized by an accumulation of numerous granulation-cells in the mucous membrane and sub-mucous tissue, the elements of which are separated and raised by the cells. This process is assisted by the abundant effusion of blood in the deeper layers of the mucous membrane. The whole is finally separated as a foreign body. The author attributes the amyloid change to the action of the acid mucus of the uterus and vagina. The acid reaction was ascertained once.—*From the Centralblatt*, No. 44, 1875.

RAYNAND. *Exophthalmic Goitre in relation to Vitiligo.*—The author quotes a case from Trousseau, and adds to it four observed by himself in which exophthalmic goitre was combined with vitiligo. He makes no hypothesis as to the nature of this complication.

LOCAL ANÆSTHESIA.—Dr Letamendi has discovered a new mode of utilizing the anæsthetic effects of ether spray.

Richardson's spray-producer is filled with rectified perfectly neutral sulphuric ether, and held at a distance of seven to eight centimetres from the skin on which the spray is directed. After about two minutes the part of the skin on which the spray has fallen becomes red, and is the seat of a disagreeable sensation of cold; there is no sensation of burning in the part.

If, at this moment, an incision, eight to ten millimetres long is made with a convex bistoury in the centre of the reddened part, not being carried deeper than the papillary layer of the cutis, immediately the incision is made, there is suddenly produced an anæmic zone which enlarges outwards from the point incised, as a circle goes on enlarging on the surface of water on which a pebble has been dropped.

If the spray is again directed for a few seconds on the part which has thus become anæmic, the region becomes perfectly bloodless and completely anæsthetic. The tissues when cut are like frozen fat, and have lost their elasticity. Around the white circle there is a zone in which the anæmia is not absolute. The spray directed on this zone speedily makes the anæmia and consequent anæsthesia complete. The anæsthesia can thus be carried around or along a limb.

The theory brought forward by Dr Letamendi to account for the effect of the slight incision is, that the cold produced by the ether causes relaxation and consequently dilatation of the vessels. The incision produces a sudden reaction which converts the extreme dilatation into extreme contraction. The practical advantage of the incision is, that anæsthesia is obtained without a prolonged application of the ether spray.—*Extracted from a Spanish Journal in the Archives de Physiologie,* No. 5, 1875.

M. VULPIAN ON THE PHYSIOLOGICAL ACTION OF JABORANDI.—He first has some remarks to make upon the dose which may be considered poisonous; he says he has many times injected an infusion of 10 or 12 grammes of the leaves into the veins of a dog, and only on one occasion did death result; in the fatal case post-mortem examination showed congestion of the gastro-intestinal tract, and of the brain and its membranes; there were also ecchymotic points in the lungs, especially under the pleuræ; he considers the lethal dose cannot be defined till the principle has been isolated. He proceeds next to consider its action on (*a*) the secretions; (*b*) the circulation; and (*c*) the iris.

Effects on Secreting Glands.—It increases the secretion of most; the salivary glands are first affected, next the lachrymals, then the glands of the skin and mucous surfaces, and finally, the liver, the pancreas, the mammæ, and the kidneys. The secretions poured out under the influence of jaborandi present the same physical and chemical characteristics as under ordinary conditions. M. Vulpian undertakes to throw some light upon the problem, how or by what means does jaborandi produce these hyper-secretions? and concludes that it is by its action in paralyzing the inhibitory influence of the terminal branches of the sympathetic system on the secreting cells, and bases this conclusion upon the following facts: Taking the submaxillary gland for his experiments, on account of its convenience and its known physiological relations, he reminds his hearers that excitation of the chorda tympani produces excessive secretion from this gland (Schiff), while faradization of the fibres of the sympathetic arrests the secretion thus provoked (Czermak); that sulphate of atropine abolishes the excito-secretory function of the chorda tympani (Keuchel), although the vessels dilate when it is excited, as usual, while on faradizing the upper end of the cut cervical sympathetic, the secretion flows anew (Heidenhain). If now, to a dog under the influence of curara, and poisoned by atropine, one administers by intravenous injection a large dose of the infusion of jaborandi leaves, not a single drop of saliva runs from the duct of Wharton. These facts prove that, although atropine does not abolish the secreting power of the gland-cells, jaborandi is not able to excite the secretion when the gland is under the influence of atropine; therefore it cannot be considered a direct excitant of the gland-cells, but either an excitor of the chorda tympani, or a paralyser of the sympathetic. To resolve this alternative, he refers to the action of jaborandi upon the sudoriparous glands, which are not known to have other than a nerve supply derived from the sympathetic; he quotes facts observed by Brown-Séquard, Meyer, and Gairdner, to show the influence of the sympathetic system on the sudoral secretion—that is to say, paralysis of the sympathetic produces an augmentation of the cutaneous transpiration. We know that jaborandi increases this secretion, and we know that we can prevent that by administering previously or at the same time a small dose of sulphate of atropine; we are also aware that the influence of these drugs on the *capillary circulation* does not account for the effect, because congestion of the skin occurs frequently without perspiration, and cases have been often observed (the third stage of ague being a constantly-recurring example) in which the congestion precedes the perspiration, but disappears when these glands are in full exercise of their function. The last lecture is devoted to the action of jaborandi upon the heart and upon the *iris*. If one poisons a frog with this drug, the heart's action slows, the auricles do not empty themselves completely at each systole, later the ventricular systole gets weaker, and finally the heart stops in full diastole; then if one injects under the skin a drop of a solution of sulphate of atropine the heart revives; if, on the other hand, the atropine is administered previously, the injection of jaborandi remains without effect. He cannot say whether the substance which acts on the heart is the same as that which produces the sialogogue and diaphoretic action, but he has noticed that an infusion of the leaves of this plant retains the latter properties much longer than it keeps the power to act upon the heart of a frog; but he adds that in the mammalian heart this difference of effect is much less striking. In its action on the iris, jaborandi produces as marked myosis as Calabar bean if applied directly to the globe, while the effect of intra-venous injection is to produce dilatation of the pupil—the result, no doubt, of irritation of the internal viscera. Here also its antagonism to atropine is observed, and we may presume the possibility of its acting by paralyzing the peripheral extremities of the sympathetic nerves. He adds, that this, as well as other questions raised in this course, need to be answered by direct experimentation.—*Progrès Médical.*

DEAFNESS (NEARLY COMPLETE) ON ONE SIDE, AFTER AN APOPLECTIC SEIZURE. By HUGHLINGS JACKSON, M.D., F.R.C.P.—The case was a severe one, two physicians expecting death to occur. The patient, however, rallied, was able to speak four days after the apoplexy, and to be about fourteen days afterwards. Both optic nerves remained normal. He had been considered deaf in his right ear for the last twenty or thirty years. It is now after his recovery the only useful one. He can only hear his wife speaking when close to the right ear. Speech is not heard in the left ear, nipping the nails is heard in the left ear. The tuning-fork is heard very feebly when placed on the left mastoid. Both membrana tympani were concave, but the right more so than the left. A case of complete deafness has never been known after apoplexy of any kind. Disease of the labyrinth may cause grave nervous symptoms, mostly vertigo, with retching and vomiting.—*Med. Times and Gazette*, 31st July 1875.

HÆMATOMA AURIS, OR BLOODY TUMOUR OF THE EAR. By Dr ALEXANDER ROBERTSON, Physician to the Town's Hospital and Asylum, Glasgow.—Is a disease met with almost solely in asylum practice. It is occasionally seen as the result of violence, as in football-players. *Its nature and course.*—Hæmatoma auris consists of an effusion of blood from the perichondrium, the fibrous membrane that invests the cartilage of the ear. The effusion is dark and venous in its character, and continues long fluid. It is usually first seen on the posterior of the concha, rather above its centre, from thence it extends inwards to the meatus, which it occasionally occludes; and outwards over the pinna, sometimes as far as the helix. If very severe the effusion may burst through the integument, but usually this remains normal in appearance and continuity. It may lead to inflammation, but it is the exception to go on to suppuration. Gangrene of part of the cartilage may occur. Generally after the lapse of two or three weeks, the tumour begins to subside slowly; but the pinna is never restored completely to its natural condition. *The forms of insanity in which it occurs.*—It is not confined to any particular form, but has been found in mania, melancholia, and dementia, but most frequently in the insanity associated with general paralysis. Dr R. does not remember to have seen it in idiocy. Dr R. here relates two cases; the first a case of general paralysis, with grandiose delusions, aged 44 years. After suffering from slight attacks of apoplectic congestion, and the paralysis still advancing whilst the patient is still able to walk about with assistance, an hæmatoma auris occurs. The patient died fully two months after the appearance of the tumour, which, on section, was found to be dark and fleshy in aspect, firm, and slightly elastic in structure, and adhering closely to the cartilage of the auricle, but less firmly, though with considerable tenacity, to the perichondrium. It was one-fourth of an inch in breadth at its thickest part. A transverse section under a power of 350 diameters showed it to be composed almost entirely of white fibrous tissue, with here and there collections of shrivelled blood-corpuscles, the fibres being stained at these points with blood-pigment. The fibrous tissue was denser at the point of junction of the cartilage with the tumour than at any other part. The second case occurred in a patient suffering from acute mania and Graves' disease, aged 22 years. There was no distinct swelling in this case, but a red band extending from the brow down to the chin, chiefly on the left side; both ears were red, chiefly left, but neither of them very bright in colour. *Its causation.*—It is not an injury, as some authors would affirm (Dr Wilks, who states that it is an injury in a constitution predisposed to sanguineous effusion, the blow or fall being secondary in its causation). How, then, are we to account for it? It is, I think, most probably due to functional disorder of the cervical sympathetie associated with, and perhaps resulting from, the existing cerebral or cerebro-spinal disturbance. Dr R. grounds his opinions on the following data:—*1st*, It not unfrequently appears in both ears simultaneously, without any indication of either having been injured. *2d*, An effusion under the conjunctiva occurred in a case of dementia at the same time, and on the same side as the tumour of the ear. *3d*, From the second case narrated, the Graves' disease, and the peculiar band described, indicating disease of the vaso-motor system. Its bearing on the prognosis of the associated insanity is decidedly unfavourable. The mind is profoundly affected, there is hyperæmia, implying vaso-motor disorder in the pia mater cerebri and hemispherical ganglia, parts whose bloodvessels, like those of the auricle, derive their regulating nerves from the cervical sympathetic.—*Glasgow Medical Journal*, 1875.

AN IMPROVED METHOD OF APPLYING THE ARTIFICIAL LEECH.—With the artificial leech as presently used, we are frequently unable to abstract as much blood as we desire, by the mouths of the divided vessels and the wound itself becoming obstructed by coagulum. Again, the scarificator often leaves a permanent scar. One accustomed to shave himself must have often found that the most superficial "nick" frequently "gives rise to the most astonishing amount of hæmorrhage, which it sometimes baffles one's ingenuity and tries one's patience to check." Such a wound leaves no scar. Acting upon this idea, a fold of skin is seized with suitable forceps, and with a sharp knife a little thin disc, about 3 mm. in diameter, involving the epidermis and the superficial layers of the cutis vera, is "nicked out;" and the suction-cylinder employed as usual. Besides this, various substances which prevent or retard the coagulation of blood have been used in promoting hæmorrhage from the wound. After several experiments with these chemicals on wounds, the ammonia salts, such as carbonate of ammonia and liquor ammonia (one drachm to one ounce of water), were found most effectual in retarding the coagulation of blood. Dr Theobald thinks that the after-bleeding of a leech-bite may be owing to some secretion from the mouth of the animal. He recommends the touching of the wound, made for extracting blood by means of the artificial leech, with the ammonia solution (ʒi. ammon. carb., ad aq. ℥i.), and a small quantity to be put into the suction-cylinder.

—SAMUEL THEOBALD, M.D., etc., etc., in the *American Journal of Medical Science*, July 1875.

A NEW PROCEDURE TO EXTRACT FLUID SUBSTANCES FROM THE CAVITY OF THE MIDDLE EAR.—The air-douche alone, whether employed upon an ear in which the tympanic membrane is intact, or on one in which the membrane is perforated, does sometimes not succeed in driving the exudation out of the tympanic cavity. The tympanic orifice of the Eustachian tube, in the majority of cases, opens high up on the anterior wall of the tympanic cavity, in consequence of which the exudation accumulated on the floor of the cavity occasionally remains undisturbed by the current of air even when it passes through the entire cavity. Again, in cases of nonperforated membrana tympani, and very often in cases of perforated membrane, at least some portion of the exudation is driven out of the tympanic cavity into the cells of the mastoid process; and where this is of a purulent or ichorous nature, inflammation may be set up in the mastoid process. To obviate these drawbacks to the use of the nasal douche, the exudation or other fluids is drawn out of the tympanic cavity by means of a syringe specially adapted to the purpose, through the opening in the tympanic membrane or by one artificially made. Tubes of various sizes and curvatures are supplied along with the syringe. To allow the exudation that may have accumulated in the mastoid cells to be withdrawn readily, a certain bending of the head forward and downward, just about the position that is taken for the purpose of dropping a medicated fluid into the meatus, with the affected ear lowermost, will permit its flow into the tympanic cavity.—*Professor Dr Jos. Gruber*, *Monatschrift für Ohrenheilkunde*, No. 12, 1874.

MORBID ANATOMY OF PROGRESSIVE MUSCULAR ATROPHY.—The following is an abstract of an interesting note on the anatomical lesions observed in a case of progressive muscular atrophy, communicated to the Société Anatomique by E. Troisier (*Progrès Médical*):—The patient was 27 years of age, and the duration of the malady was twenty-two months. The disease first showed itself in the muscles of the right shoulder, spreading thence to those of the trunk, the back of the neck, and lastly to the intercostals and the diaphragm. Death was caused by asphyxia, the result of bronchitis and the passing of food into the air-passages. Towards the last there were disturbances of pronunciation and deglutition. The hands and forearms were not affected. The *electro-contractility* of the affected muscles remained, but diminished, as death approached, in the deltoids, a part of the trapezius, and the large dorsal muscles.

Muscles.—The complexus was examined in the fresh state. The interstitial tissue was very abundant, and there were numerous fatty globules in it. The muscular fibres were very unequal in size; the transverse striæ were well marked, and there was no appearance of fatty degeneration. The nuclei were not very abundant. Several muscles were hardened, and examined after staining with picrocarmine and mounting in glycerine. The same appearances were observed, the principal fact being the variation in the size of the fibres, which were generally smaller than normal. There were no empty sheaths of sarcolemma, nor were its nuclei increased.

Nervous System.—The encephalon and the cranial nerves presented no morbid appearance; but the nerves from the medulla and cord, especially the hypoglossal nerves, were much atrophied; they were gray and semi-transparent. The medulla and cord did not present any appearance of asymmetry or atrophy. The pia mater from the medulla to the cervical enlargement was a little congested and thickened. Above the apex of the calamus there were three little lenticular blackish clots in the thickness of the pia mater. The medulla and upper part of the cord were of a brownish-gray colour; this extended posteriorly as far down as the 2d pair of cervical nerves; in front it was localized on the right side, and passed down to disappear between the 4th and 5th nerves. On making a section between the 3d and 4th pairs, the gray matter was pinkish, especially on the right side; the white matter appeared quite normal. The posterior roots of the spinal nerves were intact. The anterior roots of the first eight pairs on the right side were much atrophied, especially the 1st, 2d, 3d, 4th, and 5th; less so in the 6th and 7th. From the 8th pair they began to resume their normal dimensions. On the left side, the first four nerves were equally atrophied, but less than those on the right side; the four following ones were so also, but still to a less degree. The anterior roots in the dorsal and lumbar regions did not present any appreciable atrophy.

Microscopic Examination of a Spinal Root.—It contained a good number of large nerve-tubes, provided with myelin, but most of the tubes were diminished in size very unequally; all stages, from the normal to the most advanced degree of atrophy, were present. The smallest tubes, which were scarcely a tenth part of the natural size, still contained myelin which was not granular. The addition of soda did not bring out any fatty granules.

Examination of the Root of the Right Hypoglossal Nerve.—Some of the tubes had their transverse dimensions less than normal.

Right Circumflex Nerve (the part examined was where the nerve pierces the deltoid).—Some of the tubes were smaller than normal, but contained unbroken myelin.

Cervical Sympathetic.—No alteration in the fibres; the ganglia, to the naked eye, presented no appearance of change, but were not examined microscopically.

Spinal Cord (hardened in chromic acid, coloured with carmine, and mounted in Canada balsam, after being cleared with alcohol and oil of cloves).—The chief changes were in the cervical region; the anterior cornua were not diminished in size, nor wanting in symmetry, but under a low power the nearly total disappearance of the large nerve-cells was observed; the external group corresponding to the tractus intermedio-lateralis seemed the least affected. With a higher power the smaller cells could be distinguished, but were undergoing atrophy, some having become mere irregular little masses. The pigmentation of some of the cells was very marked. The nuclei seemed to be persistent in all the cells. These appearances were rather more marked on the right than the left side. The capillaries seemed to be very abundant, and their walls appeared thickened. The central canal was obliterated by epithelium; the commissure was healthy; the posterior cornua were intact. At the position of the pigmentation of the pia mater, fusiform cells containing pigment were noted, as well as little heaps of pigment granulations. There was some slight atrophy of the cells in the dorsal region. Other parts were examined with a negative result. The author concludes by saying, that the absence of evidence of nuclear proliferation inclines him to believe the morbid process to be atrophy independent of sub-inflammatory changes in the neuroglia, and points out where his observations differ from those of other authors, especially in the absence of evidence of proliferation of the nuclei of sarcolemma, to which M. Hayem has directed attention.

This seems to be the original notice of the effects of strychnia as an antidote to alcohol:—

STRYCHNIA AS AN ANTIDOTE TO ALCOHOLISM.—Dr H. C. Morey reports the case of a man who takes large quantities of strychnia to remove the effects of a long-continued debauch. The amount taken corresponds with the length of time he had been drinking and the amount of whisky consumed. On one occasion, when threatened with an immediate attack of delirium tremens, a dose of twenty grains of strychnia restored him to soberness in an hour. For fourteen years the case had been under the doctor's observation. The man was often drunk, and as often rendered sober by strychnia. —*Pacific Medical Journal.*

SCIATICA CURED BY EATING.—Dr J. Pretz, from his personal experience, states the following:—During an attack of sciatica, he for six months tried all the ordinary remedies without avail. Observing that his attacks were slighter after eating, he determined to eat as often as the pain recurred. This was frequently twelve times in twenty-four hours. He constantly improved under this treatment, and in about two months entirely recovered. He afterwards treated two other cases with similar results.—*Wiener Med. Presse—Medical Times.*

SYPHILITIC AMAUROSIS.—In the July No. (1875) of the *Journal of Mental Science*, Dr Hughlings Jackson, in dealing with syphilitic affections of the nervous system, mentions several facts of ophthalmological interest. The first of the following extracts is partly to the same effect as the note of Dr Hughlings

Jackson's remarks in a previous number.—"*Sight.*—Amaurosis occurring with other symptoms attributable to syphlitic disease of the brain may be put down, as a matter of course, to syphilitic changes in the deep tissues of the eyes, choroido-retinitis, by those who do not use the ophthalmoscope. This is a very grave error. It is true that amaurosis, in such cases, *may be* due to syphilitic changes localized in the *fundus oculi*, but as a mere matter of fact, it scarcely ever is. It is nearly always owing to optic neuritis or to atrophy, the sequel of that neuritis. Now, 'optic neuritis from syphilis' is not 'syphilitic optic neuritis.' The optic neuritis produced by a syphilitic tumour is just like that produced by a glioma, or by any other adventitious product in the cerebrum or cerebellum.

"I know of no evidence to prove that optic neuritis is produced either by syphilitic disease actually involving the optic nerve trunks inside the cranium or by syphilitic meningitis at the base. I speak of post-mortem evidence; clinical evidence is not sufficient.

"I never saw a neuroma of the optic nerve. I do not remember seeing simple atrophy of the optic nerve (atrophy not the sequel of neuritis) in a patient who had other nervous symptoms inferentially due to syphilis, to say nothing of never seeing post-mortem evidence of intracranial syphilis in such a case. The other kind of optic atrophy is often seen.

"Here it is important to remark that amaurosis from syphilitic choroido-retinitis is really a syphilitic disease of the nervous system, quite as much so as a syphilitic neuroma is. There is syphilitic disease of connective tissue of a nervous organ, the nervous elements suffering secondarily. He who speaks of amaurosis from optic neuritis due to syphilitic gumma in the cerebrum, and amaurosis owing to syphilitic choroido-retinitis, as if they were alike, calling them 'Syphilitic Amaurosis,' without qualification, is not speaking scientifically. It would be like speaking of a whale and a salmon as being zoologically alike."

PARALYSIS OF OCULAR MOTOR NERVES AND VERTIGO.—"Paralysis of an ocular motor nerve is a cause of vertigo. Now, the vertigo may be the symptom which the patient has first of all; that is, he has vertigo before there is actual double vision or obvious strabismus. It would be a great blunder to say of such a case in a patient the subject of syphilis, 'In this case the vertigo was the first symptom of the syphilitic disease of the brain, and then palsy of the sixth or third nerves occurred.' In reality the vertigo would, in all probability, be owing to paresis of an ocular muscle, before actual demonstrable palsy of it occurred. The vertigo continues, of course, when the palsy is established.

"Anyway, it would be very misleading to call vertigo, so caused in a syphilitic patient, 'syphilitic vertigo,' for all syphilis does, in such a case, is to damage a nerve bundle, and vertigo would attend paralysis of an ocular motor nerve, however caused. It is an error easy to fall into. If the motor nerve affected be the fourth, the ocular palsy is not obvious, and may be overlooked. And when there is evident paralysis of the third nerve, the vertigo resulting from it may be erroneously put down as a symptom independent of that palsy, and due to implication of a nerve centre. But, be it remarked, that the expression 'syphilitic vertigo' is just as warrantable as is the expression 'syphilitic epilepsy.' The expression sounds more grotesque, simply because it is novel."

THE results of Professor Cyon's investigations concerning the function of the semicircular canals, are thus given:—(1.) In order to preserve the equilibrium, it is necessary that an animal have the correct conception of the position of his head. (2.) The function of the semicircular canals is to inform the animal, by means of a series of unconscious (acoustic?) perceptions, of the correct position of its head in space, and for this purpose each semicircular canal has an exactly determined relation to a dimension of space. (3.) The disturbances in motion, which occur after section of the semicircular canals, are of three kinds—(*a.*) disturbances in equilibrium, as direct results of the artificial injury; (*b.*) involuntary movements, as results of the irritation of abnormal acoustic perceptions produced by this injury; and (*c.*) consecutive manifestations produced by the inflammation of the cerebellum, which sets in a few days after the operation. Cyon has shown that a pigeon, in which both horizontal semicircular canals have been severed, will perform regular oscillations of its head in a horizontal plane. On the other hand, a pigeon in which the vertical semicircular canal has been severed, will perform similar oscillations of its head in a vertical plane.—*Monatschrift für Ohrenheilkunde*, December 1873.

THE DEATH OF CROCÉ-SPINELLI AND SIVEL.—At a recent meeting of the Société de Biologie, M. Paul Bert communicated to its members the following particulars, concerning the late fatal balloon accident in France. Glancing rapidly at the facts which have already been made public,—the rapid ascent for two hours, the discharge of ballast, although already warned by their sensations of their danger; the sudden fainting of all the aëronauts; the recovery of Gaston Tissandier first, to find the balloon descending with alarming swiftness, then the recovery of the others; the mad act of Crocé-Spinelli in pitching overboard ballast, clothes, wraps, and instruments, including an aspirator weighing about 40 kilogrammes; the rapid re-ascent of the balloon, and the fainting of the voyagers for the second time, and Tissandier's recovery to find the balloon descending, but his two companions lying dead in the car,—M. Bert then proceeded to point out that these men were all educated and skilful in their work, and quite aware of the effects of want of oxygen in paralyzing the physical and moral forces, so that some explanation was needed for their apparent folly, in attempting to reach such altitudes without any preparation or forethought, with only a small supply of oxygen, and without taking the usual precaution of tying the cord of the valve to the arm of one of them, so that his fall alone would cause the balloon to descend. The explanation is, that at starting they intended to stop at 6000 metres, a height sufficient for the observations they were prepared to make, but Crocé-Spinelli longed to surpass the celebrated ascent of Glaisher and Coxwell, which he himself calculated to have reached the height of 8800 metres. Without doubt he seized what seemed to him a favourable opportunity, and they voluntarily ascended to the height of 8000 metres. This was the first and greatest mistake, for with only 240 litres of oxygen they could not have reasonably hoped to resist for long the influence of the rarefaction of the atmosphere at such a height. To explain what passed afterwards, M. Bert assumed that Crocé-Spinelli was no longer in his proper senses; the intellectual disturbance produced by the atmospherical conditions made him unable to act rationally, and that is the only way to account for his throwing everything overboard. M. Bert, who was the frequent adviser of MM. Crocé-Spinelli and Sivel, said he reflected with great sadness on this occurrence; had he been present at the ascent he might have insisted on their being better prepared, and thus have prevented this frightful accident. Their death was a real loss to science; they were brave and devoted men, who had already elucidated more than one problem; their sad end will perchance damp the enthusiasm and ardour of others. M. Tissandier is said to have lost none of his former courage and good will; this is so far good; but will he find imitators? Yes; let us hope that this example of courage and devotion will have the effect of stimulating the faint-hearted to greater efforts.—*Progrès Médical.*

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Ailanthus Glandulosa.—According to Dr Cobert, the root of the ailanthus glandulosa is superior to ipecacuanha or any other drug in the treatment of dysentery. It is very bitter, and in large doses induces vomiting. The Chinese take a cup of the strong infusion twice daily.—*New Remedies,* July.

Action of Alkalies and their Salts.—Pupier arrives at the following conclusions:—The administration of the alkalies in a state of health tends to augment the red corpuscles, to increase temperature and weight, and to favour trophic phenomena. In a diseased condition of the tissues, the alkalies produce anæmia by aiding in morbid changes; in a word, they may be said to increase physiological function, while they stimulate pathological processes. —*Comptes Rendus*, May. Dr Waggoner substitutes the alkaline carbonates and bicarbonates for the iodides in the treatment of glandular enlargements and indolent ulcers. He accredits the alkali and not the iodine with the curative power.—*Trans. Med. Soc. State of Pensylvania.* Dr O. Funke (*Pfluger's Archiv*, ix. 416, and *Centralblatt*, No. 29, 1875) contends that ammonia stimulates the peripheral motor nervous elements. He concludes from his experiments that it excites the vagus more quickly but less powerfully than the vaso-motor centre. In a paper, in the *Archiv für Experimentelle Pathol. und Pharmak.*, is a record of the views held by Lange respecting the action of ammonia. He always failed to detect the elimination of ammonia in a gaseous state by the lungs. He found that when carbonate of ammonia is added to blood, it will require twice as high a temperature to extricate the ammonia when the blood was taken from a living animal as when the blood was taken from a dead body. Lange believes that the ammonia salts differ from each other physiologically only in intensity; he regards the chloride as the most poisonous. That the nervous system is powerfully influenced by this salt is evidenced by the violent convulsions which it is capable of inducing; the respiration, blood-pressure, and frequency of the pulse are also powerfully affected by it.

EFFECTS OF LIME AND MAGNESIA ON THE ALKALINITY OF THE URINE.—M. Caulet, in a communication to the *Bull. Gén. de Thérapeutique*, 30th April, gives the results of his investigations in this subject. He finds that lime and magnesia render the urine alkaline not directly, but by increasing the alkalinity of the blood, which they do by necessitating an increased secretion of acid juices in the stomach. Contrasting the clinical differences between the carbonates of the alkaline earths and those of the alkalies, he affirms that the former are less certain and less constant in their action on the urine than the latter, and that the alkalinity caused by the former comes on more slowly and lasts longer; that the latter exercise an alterative effect, and that they are preferable in the treatment of gravel, calculus, and other affections incidental to the uric-acid diathesis.

SULPHITES AND HYPOSULPHITES.—Dr De Pietra Santa published in the *Mouvement Médical*, p. 91, a chapter on "Medication by Sulphites." He states that sulphurous acid is one of the most powerful antifermentative agents, and that it acts on the fermentative principle, not by decomposing it like most antiseptics, but by modifying its molecular aggregation. The sulphites of the alkalies and of the alkaline earths exert even a more constant and penetrating action, and are well tolerated by the organism. They ultimately become converted into sulphates by the oxidizing action of the respiration. To retard this conversion of the sulphites into sulphates, hyposulphites should be substituted for the former; and the hyposulphites have the additional advantage of presenting to the blood very active sulphurous acid in a *nascent* state. Seventy experiments were performed on animals, to demonstrate the possibility of neutralizing a morbid ferment. These experiments were perfectly successful. With regard to the relative advantages of the alkaline salts, the sulphites of potassium and ammonium have a disagreeable flavour, and change very easily; they should hence be reserved for the external treatment of certain malignant sores. The sulphite of soda is efflorescent, has a strong odour of sulphurous acid, and is also best adapted for external application. The sulphite of magnesia is available for internal administration, and the hyposulphite of soda is especially so, on account of its solubility, and as its flavour is not very objectionable. Zalloni and Panaschera of Lyra were the first to employ sulphite of soda in the commencement of tuberculosis; and Sestini and Ferrini of Turin have given the hyposulphite of lime with great success in cases of tuberculosis in the third stage with the nocturnal fever and fœtid expectoration. The hyposulphite of lime not only opposes the effects of purulent absorption, but favours the transformation of tuberculosis into cretaceous matter.

ARSENIC.—MM. Mayençon and Bergeret propose, as a mode of detecting arsenic and antimony, converting them into their hydrogen compounds, and allowing those to come into contact with paper dipped in solution of corrosive sublimate. Arseniuretted hydrogen causes a citron-yellow stain, and antimoniuretted hydrogen gives a grayish-brown stain. These authors find that arsenic is rapidly absorbed in the system, and appears almost immediately in the urine. Sulphurous waters aid in the complete expulsion of arsenic from the system. Antimony is absorbed and diffused more slowly, and its elimination generally begins after it has been given several days. Arsenic and antimony are eliminated by the liver and kidneys, but chiefly by the former, as ascertained by experiments on animals.—*La France Médicale*, Nos. 88 and 89.

ARSENIC IN CHOREA.—In the *British Medical Journal*, 1st May, Dr Eustace Smith insists on the necessity of giving the drug in full doses in this affection, and he calls attention to the tolerance of children for arsenic. To a child between five or six and twelve years, he would give ten minims of Fowler's solution, three times daily immediately after meals.

ARSENIC IN DIABETES.—In the *Wien. Med. Presse*, Nos. 13 and 14, Dr Samuel V. Pap records the results of his experience of the treatment of diabetes with arsenic. He finds that it decidedly diminishes the secretion of sugar, and in some instances it causes the sugar to disappear entirely from the urine. Arsenic is contraindicated in the more advanced stages of this disease. Von Pap gives three drops of Fowler's solution in the twenty-four hours at first, and gradually increases the dose to twenty drops *per diem.*

ARSENIC IN LYMPHOSARCOMA.—In a paper by Dr Tholen, in the *Archives für Klinische Chirurgie,* vol. xvii., he records four cases of lymphosarcoma successfully treated by arsenic in the manner adopted by Billroth. On an average, from three to five drops of Fowler's solution were given daily, and about twelve injections of ten drops at a time were made into the tumour during the month.

ARSENIC IN PEMPHIGUS.—Mr Jonathan Hutchinson has brought forward a mass of evidence which proves conclusively the value of arsenic in this disease. He asserts his belief that arsenic is an absolute specific for that state of health on which relapsing pemphigus depends. He believes that those who hold an opposite view, notably Professor Hebra, Bazin, and Dr Dyce Duckworth, have not had sufficient regard to the important matter of dosage, nor have they persisted sufficiently long in the treatment.—*Medical Times and Gazette,* 23d Oct. and 6th Nov.

ARSENIC-EATING.—At a recent meeting of German *savants,* at Gratz, Dr Knapp brought forward abundant proof of the fact that, in upper and middle Styria, the habit of arsenic-eating is very prevalent. The reasons assigned by those who indulge in this vice for doing so are, that it prevents disease, improves the personal appearance, and relieves the breathing.—*Wien. Med. Zeitung,* 28th Sept.

ASARUM CANADENSE.—This drug is recommended by Dr J. Scaffert as a remedy for ascarides. A compound syrup is made by exhausting one ounce of the root with three ounces of alcohol, and six of water, in a percolator; to the product are added a pound of sugar, ten grains of cochineal, twenty grains of carbonate of potash, and half-an-ounce of wine of ipecacuanha. An oleoresin is prepared by exhausting asarum with sulphuric ether, and evaporating spontaneously. Scaffert administers a mixture of equal parts of the compound syrup and fluid extract of senna; of this he gives a tablespoonful thrice daily, and he also gives at bedtime a suppository of one or two drops of the oleoresin made up with cacao-butter. In three or four days a cure is usually effected.—*Phil. Med. Times.*

CARBOLIC ACID IN WHOOPING-COUGH.—In the *British Medical Journal,* 2d Oct., Dr Robert Lee again refers to the value of inhalations of carbolic acid in this affection; and in the same journal, Dr George P. Rugg claims priority over both Dr Lee and Dr Burchardt of Berlin, in suggesting the employment of vapour of carbolic acid in whooping-cough. The latter writer recommends the steam of a solution of one and a half or two parts of the acid in 100 parts of water for inhalation thrice daily.

CARBOLIC ACID IN SUPPURATIVE PNEUMONIA.—In a case of suppurative pneumonia following a stab, Dr Angelo Cianciosi injected the pleura with a solution of 50 centigrammes of the acid in 200 of infusion of cinchona. In a month there was marked improvement; the fever ceased, the expectoration diminished, and less pus escaped. Essential oil of turpentine was given internally and by inhalation.—*Independente,* No. 4, 1875.

CARBOLIC ACID IN SKIN DISEASE.—Berndgen (*Allgem. Med. Centralzeitung,* No. 20) uses in chronic eczema a solution of five parts of the acid in ten of diluted spirit, and 120 of water. This solution he applies every morning with a camel's-hair brush. In acute eczema it is injurious. He has obtained good results with the above solution in the treatment of psoriasis.

CARBOLIC ACID IN MALIGNANT PUSTULE.—Dr Estradère treats malignant pustule very successfully by the administration of carbolic acid internally and externally.—*Bull. Gen. de Thérapeutique,* 15th June.

CARBOLIC ACID AS AN ANTHELMINTIC.—In a case of tænia, the administration of two grains every hour caused expulsion of the head and body of the worm on the second day. Carbolic acid has been recommended by Decal, Lemaire, and others, in the form of clysters, as a remedy for ascarides.—*Allg. Wein. Med. Zeit.*

SULPHOCARBOLATE OF SODA AS A PROPHYLACTIC.—In the *Medical Times and Gazette,* 24th July, Dr Brackenridge speaks highly of the value of sulphocarbolate of soda in the treatment of scarlet fever. He agrees with Dr Sansom, that it acts internally in infectious diseases by disinfecting the disease germs within the body. Acting on this theory, he advises the administration of this salt to those who are exposed to the poison of scarlet fever, diphtheria, and measles. He relates several striking cases illustrative of the value of his suggestion. He gives the salt in doses of from five to thirty grains, three or four times daily, and when it is well borne he gives it even more frequently.

COTO BARK.—This is a name given to a bark forwarded from Bolivia, South America, and submitted to Dr G. C. Wittstein for examination. The botanical origin of the plant has not yet been determined. Dr Wittstein considers that an alcoholic tincture, in the proportion of one part of the bark to nine of the spirit, is the most suitable preparation. Professor Giete, of Munich, concludes from his experiments with this drug, that in it we possess a specific against diarrhœa in its most diverse forms. He administers it in doses of 0·5 gramme of the fine powder four or six times a day. Of the tincture, he usually gives ten minims every two hours. In Bolivia, whence the plant was sent, it is regarded as a remedy against rheumatism and gout.—*Archiv. der Pharmacie*, vol. iv. p. 214.

CYANIDES IN THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM. —In an article in the *Bulletin Général de Therapeutique*, 15th Jan., Dr Luton of Rheims advocates the employment of cyanides in the treatment of acute rheumatism. He gives the history of ten cases, in all of which this treatment was strikingly successful; in one case the temperature was distinctly reduced by the cyanide. The salts he chiefly used were the cyanide of zinc, and the cyanide of potassium. The first is odourless and tasteless, and may be given suspended in mucilage or in pills, in doses of 1½ grains daily. The cyanide of potassium exercises a more direct action, but has a disagreeable taste; the maximum dose given of the latter salt was 1½–2½ grains. In large doses the cyanides produce frontal headache, nausea, colic, and sometimes slight diarrhœa. In the medicinal doses they relieve pain and diminish the redness and swelling of the affected parts. They depress the action of the heart and pulse, and the urine becomes turbid, when an improvement in the symptoms sets in. The rapidity with which they act is a great recommendation in favour of these salts.

JATROPA CURCAS.—The *American Journal of Medical Science*, Jan., quotes an article from the *Indian Medical Gazette*, in which the milky juice of the jatropa curcas is extolled as a hæmostatic. It does not cause pain nor does it act as a caustic, but simply curdles up the blood and covers the bleeding surface with a tenacious layer. It has no injurious effects on open wounds.

Part Fifth.

MEDICAL NEWS.

FROM AN INTRODUCTORY ADDRESS AT THE OPENING OF THE EDINBURGH SCHOOL OF MEDICINE, by MR JOHN CHIENE, F.R.C.S. Ed., we extract the following passages:—I address you as members of the Edinburgh School of Medicine in the widest acceptation of the term. Some would divide this School in its interests, in its usefulness, and in its power for good, into two divisions—the University and the Extra-Academical School. Its strength lies in their combination; the division is only in name. There are Professors, there are Teachers: they are all one body, whose sole object is your training as efficient members of the medical profession. The remarks I have to make are in your interests, and with an earnest desire for your welfare as students of a School which knows no divisions. . . . . *To what is the success of the*

Edinburgh School due? . . . . I believe one of the greatest causes of our continued prosperity is, that alongside of the University there is an efficient teaching staff, which acts, so to speak, as a tonic to the University Professors, encouraging a friendly rivalry, which is constantly spurring them on to continued effort, and by insisting that they perform their work in a thorough manner, directly advancing medical science. Competition is the greatest incentive to good manufacture. Free trade in commerce has increased the mercantile position of this country. Free trade in the teaching of medicine has brought students to Edinburgh, and has sent them away well educated and well prepared for the practice of their profession. . . . . It must be matter of regret to all interested in the Edinburgh School, that our Professors are not endowed. . . . . It would undoubtedly be for the benefit of the University if all restrictions could be removed. Endow the Professorial Chairs,—give the Lecturers equal privileges and equal rights with their Seniors inside the University—and the result would certainly be a still further increase in the prosperity of this School. In the meantime, it is for the advantage of the Lecturers that these privileges of the University should be maintained; because they—or their equivalent, an endowment—are necessary for the wellbeing of the University, on which the welfare of this School principally depends. Without the University in a flourishing condition, the School must go down. While this is true, it is necessary also to remember—more especially as, at the present time, there seems in the minds of some a tendency to consider the University as the Edinburgh School—that without a powerful Extra-Academical School the University influence would necessarily decline. Neither alone can draw the students to Edinburgh. Both working together, with a well-regulated Infirmary in common, have now for may years stood the test of time, and have seen the rise of many powerful Schools in London and the provinces, but have, in consequence of their inherent strength, suffered but little in the competition. . . . . Another reason, which has a very material bearing on our success, lies in the fact that here each teacher is free to choose his subject. . . . . An early and special training in teaching is the only way to true success. . . . . Speciality in practice may degenerate into quackery; speciality in teaching never can. A teacher is always subjected to a scientific cross-examination; a practitioner is not. . . . . There is no surer road to success than a belief in self. It is this self-belief, this individuality, which this School fosters. Any one is free to try the experiment; the result, if he fails, will be disastrous only to himself; he will know if he succeeds, when he draws to his class-room a few earnest students, who can only be attracted by *himself;* their progress his encouragement; his earnestness their best example. . . . . This essential feature of our method—to allow each to choose his place on our teaching staff—directly encourages the individuality of the teachers, and this in its turn encourages the individuality of the taught. Individuality means freedom. You are free to choose your teacher, and in most branches you have an abundant choice. You choose your teacher on account of his individual worth. He may have certain peculiarities; it is desirous that he should ventilate them. He may believe in his methods of conveying instruction; he can put them to a practical test, and if he is a true prophet, his labours will be followed by well-merited success. Glasgow, I am glad to see, is beginning the good fight; all success to those gentlemen who have obtained permission to lecture in the Royal Infirmary of that city. The results to themselves will be self-improvement; the result to their University will, I feel sure, be an increase in its efficiency. . . . . In order to true teaching, then, individuality and freedom must have the sway. In order to true learning, I belicve the same rule holds good; to interfere with the individuality of a student appears to me the great mistake of the systems of the present day. . . . . Rules, regulations, statutes, visitors of examinations, assessors, councils, are the order of the day. The result, perhaps, is a better training of the mass to mediocrity—a necessity, no doubt. Would that it could be attained without damaging and distorting the individuality and freedom of the student. . . . . What is the future of our School? To be successful, we must go forward. Our motto must be "Excelsior;" and the new Infirmary and University buildings show that this is not forgotten. But in order that the new University buildings may bear proper fruit, we must soon have outside the University more appliances for the teaching of such subjects as Anatomy and Physiology. . . . . These necessities cannot be attained in this building; and, in my opinion, the time has now arrived for building new class-rooms and laboratories for these subjects. But it is as reasonable to expect the Professors to build their laboratories, as it is to ask our Lecturers to build theirs. We cannot, I fear, expect the public to contribute. To whom, then, are we to apply? It appears to me that the Colleges of Physicians and Surgeons should undertake the work. . . . . What could be more worthy of their existence than the strengthening of the School to which they belong, and on which, if the truth must be told, they live? The College of Surgeons started the Anatomical School, the College of Physicians the Royal Infirmary of this city. Let the same spirit now rule their councils, and let them see that before very long we owe to their joint efforts a well-equipped building, with well-paid demonstrators, in which the scientific subjects may be taught with comfort to both teachers and taught. . . . . In the name of the lecturers, and on behalf of the students, I ask this of the Colleges. I ask it in no spirit of rivalry to the University, for my firm belief is, that the better the appliances without, the greater will be the success within the walls of the University. . . . . We are now not far distant from what must be to all of us an interesting event in the history of our School. We are soon to leave the old Infirmary, which for 150 years has done such signal service to medical science. A history of that institution would indeed be a record of medicine and surgery. . . . . Our managers are fully alive to the fact that the welfare of the patients, and the wellbeing of the students, are inseparably connected. . . . . Is it right that during three of the four years of your student life, only one hour is given by the authorities to clinical study? The hours from twelve to two should be sacred to the hospital. . . . . Might not the out-patients be utilized more than they are at present, for the teaching of the elements of medicine and surgery? There is surely a quantity of material running to waste, which might be made use of for the teaching of the junior students. . . . . One of the weak points of our School is the small number of beds, as compared with the large number of students. Our wards are uncomfortably crowded. An organization of the out-patient department would undoubtedly lessen the number of students attending the wards. . . . . The appointment of a special Professor of Clinical Medicine appears to me another improvement worthy of consideration. Glasgow has taken the lead in this matter. Surely it is an anomalous position to have a Professor of Clinical Surgery, and none on Clinical Medicine. . . . . Progress in the right direction will result in greater fame, will directly benefit the patients, and will, if possible, still further widen the range of the grand motto laid down by the founders of our Infirmary—"*This Hospital will be open to all the curable distressed, from whatever corner of the world they come, without restriction.*"

TOO MUCH BRAIN WORK BAD FOR THE LEGS.—We regret to learn that in our chief city, owing, it may be, to their severe and exhausting mental labours, to their burning of the midnight oil, and poring over the microscope, most of the medical men have begun to suffer from a paralysis of their lower extremities, and a deposit of fat under the skin of the abdomen; which compels them, much against their will, and to the great detriment of their pockets, to drive about in buggies of various kinds, mostly shut and provided with closely-fitting windows for exclusion of damp air. This malady as yet has confined itself to the younger and less busy members of the profession; many of the older ones, being still able to walk or occasionally to go on the roof of tram cars, are still lean and vigorous. What risks those noble men run in the pursuit of science!—*North Ronaldshay Literary Gazette*, Texas, U.S.A.

SAVE US FROM OUR FRIENDS.—"*Edinburgh, 11th November.—Opening of the Medico-Chirurgical Society.*—The first meeting this session of the Medico-Chirurgical Society took place yesterday. The president, Dr Haldane, occupied the chair, and there was a good attendance of members. This meeting was, at the outset, remarkable for an entire absence of pathological specimens, the exhibition of which usually occupies at least the first hour. It is to be hoped that this is a favourable sign, and indicates a desire on the part of the surgeons, who are the principal exhibitors, to exercise that self-repression in this direction which is so necessary for the prosperity of the Society. For some years past the growing tendency to produce, at each meeting of the Society, everything great or small—from a corn or wen to a huge ovarian tumour—that has been removed by operation from the human body, has been becoming intolerable. We are not yet in a position to establish a separate Pathological Society in Edinburgh; but we have certainly reached the period when it has become necessary—if members of the Society are not to be driven from attending its meetings altogether by the constant postponement of papers which they have come, often long distances, to hear—to impose some definite restrictions on the length of time to be allowed for the exhibition of pathological specimens."—*Edinburgh Correspondent of the "Medical Times and Gazette,"* 20th November 1875.

THE PATHOLOGICAL SOCIETY OF LONDON.—*Fas est ab amico doceri.*—There are, we think, many palpable defects in the nature of the proceedings during the last few years, and they are rather growing than lessening in intensity. This is partly due to the changes wrought by lapse of time and progress of knowledge, partly to a certain negligence which threatens to become stereotyped. And, first, as to this negligence; it is, we think, a defect both of manner and of matter. The proportion of uninteresting cases brought forward is much greater than it ought to be; and of interesting cases it may frequently be said, that they are not brought forward in a manner which does justice to the specimen and to its reporter, or which is respectful to the Society. To be worthy of the Society, the report presented on any specimen brought under notice ought, we think, to give not only a brief record of the anatomical characters of the specimen, but to point out its place in medical literature and science; and ought to indicate the references to similar specimens on record, and to differentiate it where it shows difference: it ought to indicate the relation of the pathological specimen to the pathological process which it illustrates, and, where possible and desirable, as is most commonly the case, to establish its clinical relations. It may be said that not every specimen would bear such treatment, and that it would make the reports intolerably long and tedious. Such a reply would, however, involve a twofold error. Tediousness does not bear a necessary relation to length, but rather to superfluity or dulness of matter or baldness of manner. A very short communication is often dull, and a number of short dull communications are often intolerably tedious. A more pointed statement, satisfying the legitimate requirements of his hearers, would be far more welcome. But a carefully considered statement is commonly more brief than improvised and hasty talk about a specimen. Experience very soon teaches that it takes time and thought to achieve brevity and condensation, while prolixity is the offspring of carelessness. . . . . Many exhibitors find it more convenient to submit the specimen, to read a microscopic report on it, and to trust to the inspiration of the moment for any commentary on it, or elucidation of its relations to pathological literature or to medical science. This explains a good deal of what is objectionable and perfunctory in the manner of report. They must be reminded that final success in *impromptu* speaking is only attained, according to the experience of the most able and accomplished persons, by long years of a habit of carefully preparing in writing the matter which is to be orally delivered. . . . . Many preparations are, as it seems to us, now shown at the Pathological Society which would be interesting enough in the lecture-room or laboratory for the instruction of students, but are stale and unprofitable enough for the members of such a Society. We should be slow to discourage histological enthusiasm; for the microscope has revealed a new basis of pathology, and it would be presumptuous to think of setting limits to its further achievements. . . . . This is what many exhibitors are apt to forget. We are not anxious to arrest the display of individually interesting specimens; we would rather encourage it; but we are anxious to urge the necessity of defining, developing, and illustrating the points of interest.—*British Medical Journal*, 20th November 1875.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

EDINBURGH, 23*d November* 1875.

SIR,—Dr Watson's recent readings in Criminal Law have, I am sorry to say, done himself and his cause no good.

In his first letter Dr Watson said, "the prisoner was tried upon two charges—1. That of murder; and, 2. That of culpable homicide; and at the outset he pled not guilty to both;" and he added, "Dr Littlejohn knows this as well as I do." In reply I stated, "the prisoner was tried on the simple charge of murder, and pled not guilty to that charge, and to that alone."

Instead of having the candour to acknowledge that he had made a mistake, in speaking so pointedly to two charges on which his client was tried, and to both of which he pled guilty—or, if he doubted my positive statement that he was wrong, in place of getting from the agents in the case a copy of the indictment which contained the charge preferred by the Crown, Dr Watson takes to reading Alison on Criminal Law, and makes what to him is apparently a discovery, that a person tried on a charge of murder may plead guilty to culpable homicide, and that this plea may be accepted by the public prosecutor and a verdict in accordance given by the jury. But the question remains, What was the charge preferred by the Crown against the prisoner *in this case?* It is a simple fact, and admits of easy verification. It is no answer to quote Alison as to what a prisoner may plead guilty to, under a charge of murder, or as to what verdict a jury may return under the circumstances. The quotations from Alison are not to the point, and the commentaries upon them are equally inaccurate.

Dr Watson, instead of appealing *ad misericordiam* to the agents, who employed him, for their opinion of his evidence, founded on a very questionable experiment, might have inquired as to the plea of mental infirmity which they were prepared to urge in defence, and also, as to the presence in court on behalf of the prisoner of Professor Maclagan, Dr Tuke, Dr Grainger Stewart, Dr Howden of Montrose Asylum, and Dr Yellowlees of Gartnavel Asylum. Dr Watson, however, is blind to everything but himself and his evidence; and so ignorant is he of the very case he speaks so authoritatively about, that in the face of such notorious facts he says, "as to the question of the prisoner's mental capacity, *it formed no element in the disposal of the case.*" It assuredly formed a large and telling portion of the speech of the prisoner's counsel (which Dr Watson ought to have listened to), who quoted largely from the evidence of the Crown medical witnesses in support of his contention that the prisoner was of imperfect mental calibre.

Dr Watson, however, ignores all this, and manages, conveniently for himself, to give no answer to the questions in my last letter, where I proved to the satisfaction of every unprejudiced mind, that his evidence, that the fatal blow had been inflicted *accidentally*, "proved no element in the disposal of the case," except in so far as it led to the frantic scenes so well depicted by Dr Watson, when the prisoner was concussed by his agents into pleading guilty to culpable homicide, for which a sentence of *penal servitude for fifteen years* was passed. If Dr Watson claims this sad result as the effect of his evidence, what must now be the poor prisoner's feelings, "who," according to Dr Watson, "felt his (Dr Watson's) evidence to be of such importance, that he would be freed from the charge." I only wish that Dr Watson was as thoroughly awakened from his dream as to the potency of his evidence, as I am convinced his "intelligent" client is by this time.

The case, however, is too important in many of its aspects, especially so far as the conduct of the defence was concerned, to be treated of in a desultory correspondence, and I shall therefore take occasion to allude to it at some length, in the series of papers on the Practice of Medical Jurisprudence, which are being published in this Journal. HENRY D. LITTLEJOHN, M.D.

⁂ DR WATSON'S answer to the above is unavoidably postponed until our January Number, and with it this interesting correspondence must cease.

PUBLICATIONS RECEIVED.

Isaac Ashe, M.D.,—Medical Politics. Dublin, 1875.
John Hughes Bennett, M.D.,—Researches into the Antagonism of Medicines. London, 1875.
Robert Bentley, F.L.S., and Henry Trimen, M.B.,—Medicinal Plants. Parts I. and II. London, 1875.
E. Bergmann,—Die Resultate der Gelenkresectionem im Kriege. Giessen, 1874.
Henry Heather Bigg,—The Gentle Treatment of Spinal Curvature. London, 1875.
D. Campbell Black, M.D.,—Functional Diseases of the Urinary and Reproductive Organs. London, 1875.
Braithwaite's Retrospect,—Jan. to June. London, 1875.
Robert Brudenell Carter, F.R.C.S.,—A Practical Treatise on Diseases of the Eye. London, 1875.
M. J. Chapman, M.D.,—Ling's Educational and Curative Exercises. London, 1875.
Congrès Périodique International des Sciences Médicales, 4e Session. Brussels, 1875.
Dr Elliott Coues,—Abstract of Results of a Study of the Genera Geomys and Thomomys. Washington, 1875.
Richard Davy, F.R.C.S.,—New Inventions in Surgical Mechanisms. London, 1875.
Arthur Scott Donkin, M.D.,—On the Relation between Diabetes and Food. London, 1875.
John Eric Erichsen, F.R.C.S.,—On Concussion of the Spine. London, 1875.
J. Fayrer, M.D.,—The Royal Tiger of Bengal. London, 1875.
Tilbury Fox, M.D.,—Atlas of Skin Diseases. Parts I. and II. London, 1875.
Alex. Gordon, M.D.,—Fractures of the Lower End of the Radius, etc. London, 1875.
T. Henry Green, M.D.,—An Introduction to Pathology and Morbid Anatomy. London, 1875.
Edward Headlam Greenhow, M.D.,—On Addison's Disease. London, 1875.
W. Handsel Griffiths,—Lessons on Prescriptions and the Art of Prescribing. London, 1875.
Thomas Hayden,—The Diseases of the Heart and of the Aorta. Dublin, 1875.
Alexander Henry, M.B.,—Posological and Therapeutic Tables. Edinburgh, 1875.
E. Holland, M.D.,—Health in the Nursery. London, 1875.
J. Hughlings Jackson, M.D.,—Clinical and Physiological Researches on the Nervous System. No. I. London, 1875.
Henry Lee,—Lectures on Syphilis. London, 1875.
Dr Leroy-Dupré,—Des Indications et des Contre-Indications de l'Hydrothérapie. Paris, 1875.
Robert Liveing, M.D., — Notes on the Treatment of Skin Diseases. Lond., 1875.
George H. Lyman, M.D.,—Annual Discourse before the Massachusetts Medical Society, 9th July 1875. Boston, 1875.
Robert M'Donnell, M.D.,—Lectures and Essays on the Science and Practice of Surgery. Part II. Dublin, 1875.
Ch. Monod, M.D.,—Des Diverses Méthodes de l'Exérèse. Paris, 1875.
Nicholas Morgan,—The Skull and Brain, and their Indications of Character. London, 1875.
John Morton, M.B.,—Vaccination and its Evil Consequences. Paramatta, N.S.W., 1875.
Dr G. Nepveu,—Tumeurs du Testicule; De l'Extirpation du Rein; Rupture des Kystes de l'Ovaire; and, Lésions Vasculaires dans les Fractures de Jambe. Paris, 1875.
Arthur Trehern Norton, F.R.C.S.,—Affections of the Throat and Larynx. London, 1875.
Henry D. Noyes, M.D.,—Cases of Disease in the Orbit. New York, 1875.
Lambert H. Ormsby, M.B.,—Deformities of the Human Body. Dublin, 1875.
Fessenden N. Otis, M.D.,—Stricture of the Male Urethra. New York, 1875.
E. A. Parkes, M.D.,—On the Issue of a Spirit Ration during the Ashantee Campaign of 1874. London, 1875.
Surgeon-Major J. H. Porter,—The Surgeon's Pocket-Book. London, 1875.
Report on Certain Forms of Skin Diseases observed in the Madras Presidency. Madras, 1875.
Report of the Hygiene of the United States Army. Washington, 1875.
Seventeenth Annual Report of the General Board of Commissioners in Lunacy for Scotland. Edinburgh, 1875.
Benjamin W. Richardson, M.D.,—On Alcohol. London, 1875.
Edward Seguin, M.D.,—The Clinical Thermoscope. New York, 1875.
Robert Hunter Semple, M.D.,—Manual of the Diseases of the Heart. Lond., 1875.
William Robert Smith,—Lectures on Nursing. London, 1875.
Alfred Swaine Taylor, M.D.,—On Poisons. London, 1875.
Hugh Owen Thomas,—Diseases of the Hip, Knee, and Ankle Joints. Liverpool, 1875.
Transactions of the College of Physicians of Philadelphia. Philadelphia, 1875.
Transactions of the Medical and Chirurgical Faculty of Maryland. Baltimore, 1875.
Transactions of the New York Academy of Medicine. New York, 1874.
Jolliffe Tufnell, F.R.C.S.I.,—The Successful Treatment of Internal Aneurism. London, 1875.
W. W. Wagstaffe, F.R.C.S.,—Student's Guide to Human Osteology. London, 1875.
Henry Watts, F.R.S.,—Dictionary of Chemistry, Second Supplement. London, 1875.

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

Page

1. **George W. Balfour, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh.**—Lecture on Malposition of the Aorta, due to Rickets, simulating Aneurism, ... 1
2. **T. S. Clouston, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum.**—Royal Edinburgh Asylum Papers. Two Cases of Tumour of the Brain Contrasted, ... 11
3. **Thomas Annandale, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.**—On a New Operation for the Cure of certain Cases of Aggravated "Knock-Knee" (*with Illustration*), . . 18
4. **William Yeats, M.D., etc., Bankfoot, Perth.**—Remarks on the Present Method adopted for the Disposal and Treatment of the Subjects of Mental Disease, ... 21
5. **J. Crawford Renton, M.B., etc., Glasgow.**—Clinical Surgical Cases, . 31
6. **J. P. Bramwell, M.D., L.R.C.S., Visiting Physician to the County and City of Perth Infirmary.**—Scarlatina Anasarca and its Treatment, . 36
7. **Robert Saundby, M.B.**—Practical Notes on Oxaluria, ... 41
8. **John Macpherson, M.D., Inspector-General of Hospitals (retired).**—Glimpses at the Health Resorts of the Bay of Naples in Ancient and Modern Times (*concluded*), ... 46

VIVISECTION, ... 53

PART II.—REVIEWS.

1. Clinical Lectures and Essays. By Sir JAMES PAGET, Bart., F.R.S., D.C.L. Oxon., LL.D. Cantab., etc., ... 55
2. Des Paralysies Bulbaires, etc. Par le Dr HALLOPEAU, ... 59
3. Virchow's Archiv. "Ueber das Verhalten der Vandungen der Blutgefässe bei der emigration weisser Blutkörper." Von Prof. Dr JULIUS ARNOLD, 59
4. Cases in Surgery illustrative of a New Method of Applying the Wire Ligature in Compound Fractures of the Lower Jaw. By H. O. THOMAS, 61
5. On Reflex Irritations throughout the Genito-Urinary Tract. By FESSENDEN N. OTIS, M.D., ... 61
6. Concerning the Army Medical Department. By UNION, ... 62
7. Annual Reports of the Royal Edinburgh Asylum; of the Crichton Royal Institution and Southern Counties Asylum; of the Belfast District Hospital for the Insane; of the Cheshire County Asylum; of the Stirling District Asylum; of the State Lunatic Asylum, Utica, N.Y.; and of the Northern Asylum for Insane, Oshkosh, Wisconsin, for 1873, 62
8. Twenty-third Report on the District, Criminal, and Private Lunatic Asylums in Ireland, etc., ... 69
9. Fourteenth Report of the Scottish National Institution for the Education of Imbecile Children, Larbert, Stirlingshire, ... 71

PART III.—MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.—SESSION LIV., MEETING VIII.—Exhibition of Pathological Specimens, Patients, etc., by Messrs BELL, ANNANDALE, and CHIENE, and Drs KEITH and WATSON. Paper by Mr GILRUTH on the Physiological Effects of Section of the Spinal Cord in Lower Animals. Paper by Dr T. J. MACLAGAN on the Pathology of the Contracting Kidney, with Discussion by Drs HALDANE and DUNCAN, 72

OBSTETRICAL SOCIETY OF EDINBURGH.—SESSION XXXIV., MEETING VIII.—Exhibition of Specimens by Drs SIMPSON and DUNCAN. Paper by Dr MACDONALD on a Case of Puerperal Tetanus, with Discussion by Drs STEPHENSON, SIMPSON, and DUNCAN. Notes on Intrauterine Craniometry, by Dr DUNCAN, ... 78

PART IV.—PERISCOPE.

Gross on Syphilis in its Relation to the National Health.—Contagiousness of Syphilis Hereditaria.—Treatment of Ulcers of the Leg by Circumcision.—Monthly Report on the Progress of Therapeutics. By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P. Ed., etc., ... 80–92

PART V.—MEDICAL NEWS.

Professor LISTER in Munich.—Presentation to Dr K. N. MACDONALD, . . 92
CORRESPONDENCE—On the Diagnosis of Erectile Tumours within the Orbit.—Banquet to Professor Lister at Leipzig, ... 94
PUBLICATIONS RECEIVED, ... 96

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

Page

1. **H. D. Littlejohn, M.D., F.R.C.S. Ed., Surgeon of Police and Medical Officer of Health for Edinburgh; Lecturer on Medical Jurisprudence and Hygiene, School of Medicine, Edinburgh.**—On the Practice of Medical Jurisprudence, ... 97
2. **James Spence, Professor of Surgery in the University of Edinburgh.**—Record of the Completed History of a Case of Recurrent Tumour, . 102
3. **W. W. Ireland, M.D., Medical Superintendent of the Larbert Institution.**—Report upon Some Cases of Microcephalic Idiocy and Cretinism, 109
4. **William Macewen, M.D., F.F.P.S.G., Glasgow.**—Clinical and Pathological Observations on Some Cases of Fracture of the Skull and Intracranial Lesions, ... 120
5. **Robert Somerville, M.D., Galashiels.** — On the Hydrostatics of the Catheter, and a proposed Modification of its Form (*with Illustrations*), 127
6. **Charles E. Underhill, M.B., F.R.C.S.E.**—Note on the Uterine Mucous Membrane of a Woman who died immediately after Menstruation, . 132
7. **Francis W. Moinet, M.D., F.R.C.P. Ed., Lecturer on Materia Medica, Surgeons' Hall, Edinburgh.**—On the Administration of Opium, . 134
8. **Holland J. Cotton, M.B., etc., House Physician to the Royal Infirmary, Edinburgh.**—On the Mechanical Means of Washing out the Stomach (*with Illustrations*), ... 136
9. **George Fleming, M.R.C.V.S., F.R.G.S., Royal Engineers.**—The Toxical Properties of Lolium Temulentum and Lolium Linicola, . . 138

The British Medical Association, ... 147

PART II.—REVIEWS.

1. Cyclopædia of the Practice of Medicine. Edited by Dr H. von Ziemssen, 148
2. On Paralysis from Brain Disease in its Common Forms. By H. Charlton Bastian, M.A., M.D., F.R.S., ... 151
3. A Manual of Diet in Health and Disease. By T. K. Chambers, M.D., . 152
   On Diet and Regimen in Sickness and Health. By Horace Dobell, M.D., 152
4. Animal Mechanism: A Treatise on Terrestrial and Aerial Locomotion. By E. J. Marey, ... 153
5. A Guide to the Practical Examination of Urine, for the Use of Physicians and Students. By James Tyson, M.D., ... 158
6. Myringomycosis Aspergillina (Fungus Ear Disease). By J. Cassells, M.D., 159
7. Zeitschrift für Geburtshülfe und Frauenkrankheiten. I Band, 1 Heft, . 160

PART III.—MEETINGS OF SOCIETIES.

Medico-Chirurgical Society of Edinburgh.—Session LIV., Meeting IX.—Exhibition of Patients by Dr Grainger Stewart; and of Pathological Specimens by Drs Haldane and Macdonald, and Messrs Annandale and Chiene. Paper by Professor Spence on the Completed History of a Case of Recurrent Tumour, with Discussion by Drs Haldane, Wyllie, and Matthews Duncan, and Messrs Annandale and Bell. Paper by Dr Foulis on the Pathology of the Ovary, ... 161

Annual Meeting of the Forfarshire Medical Association, ... 170

PART IV.—PERISCOPE.

Dermatitis Circumscripta Herpetiformis.—Is Drinking Water a Source of Typhoid Epidemics?—Formation of Vesical Calculi through Foreign Bodies in the Bladder.—Influence of Different Antisyphilitic Remedies on the Pregnancies of Syphilitic Women.—Iodoform in Chronic Suppuration of the Middle Ear.—Dislocation of the Penis.—Alternate Hemiplegia.—The Processes by which the Circulation is Re-established in Veins occluded by Thrombosis.—Lactation of New-Born Infants.—Monthly Report on the Progress of Therapeutics. By W. Handsel Griffiths, Ph.D., ... 171–183

PART V.—MEDICAL NEWS.

General Medical Council.—Dinner to Dr Lowe.—Presentation to Dr Mungall of Cowdenbeath, ... 183–189

Obituary Notices of Prof. Oswald Home Bell and Dr Henderson, Auchinblae, 189

Correspondence, ... 190

Publications Received, ... 192

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

Page

1. **Joseph Lister, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.**—Demonstrations of Antiseptic Surgery, before Members of the British Medical Association, 4th and 5th August 1875, . . 193
2. **T. Laycock, M.D., Physician in Ordinary to the Queen for Scotland, and Professor of the Practice of Physic and of Clinical Medicine, Edinburgh University.**—A Case of Tubercular Leprosy: with a Comment, . 205
3. **W. W. Ireland, M.D., Medical Superintendent of the Larbert Institution.**—Report upon Some Cases of Microcephalic Idiocy and Cretinism (*with Illustrations*), ... 214
4. **Robert Farquharson, M.D., etc.**—On the Grouse Disease, . . . 222
5. **James Cumming, M.D., F.R.C.P. Ed., etc.**—On the Uterine Souffle and the Fœtal Heart, ... 230
6. **George Fleming, M.R.C.V.S., F.R.G.S., Royal Engineers.**—The Toxical Properties of Lolium Temulentum and Lolium Linicola (*continued*), . 234

Cremation and Wicker Coffins, ... 243

The British Medical Association, ... 244

PART II.—REVIEWS.

1. Diseases of the Kidney, and Urinary Derangements. By W. Howship Dickinson, M.D., ... 245
2. A Manual of Diseases of the Heart. By Robert Hunter Semple, M D., 247
3. Lectures on Diseases of the Respiratory Organs, etc. By A. L. Loomis, M.D., 248
4. Consumption and Tuberculosis. By John Francis Churchill, M.D., . 249
5. On Winter Cough, Catarrh, Bronchitis, Asthma, etc. By H. Dobell, M.D., 250
6. Consumption in Australia. By C. A. Reeves, B.A., M.D., . . . 250
7. A Practical Treatise on the Diseases of the Ear. By D. B. St J. Roosa, M.D., 251
8. Lectures on Diseases and Injuries of the Ear. By W. B. Dalby, F.R.C.S., 252
9. Principes de Thérapeutique Générale. Par J. B. Fonssagrives, . . 253
10. The Diseases of Tropical Climates and their Treatment. By J. A. B. Horton, M.D., ... 254
11. On Alcohol. By Benjamin W. Richardson, M.A., M.D., . . 255
12. The Journal of Psychological Medicine and Mental Pathology, . . 255
13. Note on the Treatment of Skin Diseases. By Robert Liveing, M.D., . 256
14. The Maintenance of Health. By J. Milner Fothergill, M.D., . . 256
15. Therapeutic Means for the Relief of Pain. By John K. Spender, M.D., . 257
16. Essays on Conservative Medicine and Kindred Topics. By Austin Flint, M.D., ... 257
17. The Breath, and the Diseases which give it a Fœtid Odour. By Joseph W. Howe, M.D., ... 258

PART III.—MEETINGS OF SOCIETIES.

Medico-Chirurgical Society of Edinburgh.—Session LIV., Meeting X.—Exhibition of Pathological Specimens, Patients, etc., by Drs Littlejohn, G. W. Balfour, Watson, and Batty Tuke. Case of Accidental Poisoning of a Child by Bow's Liniment, by Dr Cuthbert, with Remarks by Dr Macdonald. Note on a Case of Malignant Pustule, by Mr Bell, with Discussion by Drs Balfour and Watson. Paper by Mr Chiene on the After-Treatment of Excision of the Knee-Joint, with Discussion by Drs Balfour and Watson, ... 258

Obstetrical Society of Edinburgh.—Session XXXIV., Meeting IX.—Paper by Dr Foulis on the Development of Cysts in the Stroma of the Ovary, with Discussion by Drs Macdonald, Simpson, Keiller, and Matthews Duncan. Dr Underhill's Note of a Case in which the Fœtal Heart was heard at an Early Period of Pregnancy, . . 265

PART IV.—PERISCOPE.

Mauriac on Synovitis of Tendons Symptomatic of Syphilis and Gonorrhœa.—Monthly Report on the Progress of Therapeutics. By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., ... 270-276

PART V.—MEDICAL NEWS.

International Congress of Ophthalmology.—Successful Candidates for Appointments in Her Majesty's British Medical Service, . . . 282

Obituary Notice of Robert Pridie, M.D.—Correspondence, etc., . . 283

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

Page

1. **G. W. Balfour, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary.**—On Obstinate Trigeminal Neuralgia as a Symptom of Syphilitic Cerebral Disease, its Diagnosis and Treatment, ... 289
2. **George Shearer, M.D., Liverpool.**—Enlargement of the Pineal Gland and Sclerosis of the Brain, in a Case of Chronic Epilepsy, with Amentia and Aphasia, ... 297
3. **Alexander R. Coldstream, M.B., C.M., L.R.C.S. Ed.**—Notes of a Case of Ulcerating Endocarditis, ... 299
4. **Clarkson Cuthbert, M.D., F.R.C.S.E.**—A Case of Accidental Poisoning of a Child, two years and three months old, by Two Drachms of Bow's Liniment—Recovery, ... 302
5. **John Chiene, M.D., Assistant-Surgeon Edinburgh Royal Infirmary.**—Note on the After-Treatment in Excision of the Knee-Joint, . . 306
6. **George Fleming, M.R.C.V.S., F.R.G.S., Royal Engineers.**—The Toxical Properties of Lolium Temulentum and Lolium Linicola (*concluded*), . 308
7. **James Cumming, M.D., F.R.C.P. Ed., etc.**—On the Uterine Souffle and the Fœtal Heart.—Part II. On the Fœtal Heart (*with Illustrations*), . 317
8. **W. W. Ireland, M.D., Medical Superintendent of the Larbert Institution.**—Report upon Some Cases of Microcephalic Idiocy and Cretinism, 327

PART II.—REVIEWS.

1. Reports on the Treatment of Imbeciles, ... 332
2. Annali Universali di Medicina e Chirurgia, diretti dal Dottor MALACHIA DE CRISTOFORIS 338
3. Handbook of the Trade Products of Leh, with the Statistics of the Trade from 1867 to 1872 inclusive. By J. L. T. AITCHISON, M.D., . . 339
4. The Royal Tiger of Bengal: His Life and Death. By J. FAYRER, M.D., F.Z.S., Bengal Medical Service, ... 339
5. Hospital Outlines: Sketches and Portraits, ... 339
6. Impressions of Madeira. By WILLIAM LONGMAN, F.G.S., . . . 341
7. The Veterinary Journal, and Annals of Comparative Pathology. Edited by GEORGE FLEMING, F.R.G.S., etc., ... 341

PART III.—MEETINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF EDINBURGH.—SESSION XXXIV., MEETING X.—Exhibition of Specimens by Drs UNDERHILL and MATTHEWS DUNCAN. Note by Dr UNDERHILL on the Uterine Mucous Membrane of a Woman who died immediately after Menstruation, with Remarks by Dr DUNCAN. Paper by Dr M'RAE on a Case of Twin Conception, with Discussion by Drs SIMPSON and UNDERHILL, ... 343

Information regarding Medical Education and Examinations, ... 345
The Edinburgh School, ... 350
Course of Study required by the various Boards of the United Kingdom, . 352
Medical Schools of Scotland, 1875-76, ... 353
List of Hospitals, Dispensaries, etc., in connexion with the Medical Schools of Scotland, ... 355
Army Medical Department, ... 357
Army Medical School, ... 360
Indian Medical Service, ... 360
Navy Medical Department, ... 362
Preliminary Examinations for the Diplomas of the Royal Colleges of Physicians and Surgeons of Edinburgh, with Examination Papers, . . 363

PART IV.—PERISCOPE.

Notes on Physiology and Experimental Pathology. By JOHN G. M'KENDRICK, M.D., F.R.S.E., ... 369
On Poisoning by Santonin, and its Treatment. By P. BECKER.—Bandl on Rupture of the Uterus.—Blue Urine, etc., ... 373
Antisepticism: a Fytte, ... 376
CORRESPONDENCE, ... 382

EXTRACTS OF REPORTS ON THE USES OF

Calvert's Carboliq Soaps.

Extract of Letter to "The Lancet," January 23, 1875, on DIPHTHERIA, by W. H. Kempster, Esq., L.R.C P.Lond., etc., etc., Medical Officer of Health for Battersea, London.

"On reading Dr G. Johnson's paper on Diphtheria in your late issues, I was surprised to observe no mention made of Carbolic Acid—an agent tried by me some years ago in despair at the almost invariably fatal termination of cases treated by the agents recommended by Dr Johnson. Since that time, by using a mixture of *Acid Carbolic Opt.* (*Calvert's*), one to five minims (according to age), with a drachm or two of syrup of orange and water (thus getting rid of gargles and the painful operation of swabbing the throat, the act of deglutition bringing the medicament into contact with the fauces and other parts affected), I have lost but one patient out of some thirty or forty, in which case the air-passages were affected from the first. In all these cases the characteristic exudation was visible, and they were not cases of ordinary cynanche."

Extract of Letter to "Madras Medical Journal," by Assistant-Surgeon M'Nanney, on INTERMITTENT FEVERS.

"I administered it (*Calvert's No. 1 Carbolic Acid*) in seventy-six cases of fever of different types, with marked success. I gave it in doses ranging from five to twenty minims; and where I observed a tendency to relapse I at once increased the dose. It was given in bitter infusions of gentian, calumba, or chiretta, three times a day.

"Having had ample opportunity of judging the effects of this remedy, and finding its success to exceed my expectations, I trust the information I give will suffice to induce others to adopt it in similar cases; and I do not think that a careful trial of it will fail to prove satisfactory."

The above and various other experiments reported in the Medical Journals, lead F. C. C. & Co. to consider that their No. 1 Acid deserves to be fully tested in cases of Smallpox, Typhoid Fever, Scarlatina, and other Febrile Diseases.

"Journal of Cutaneous Medicine and Diseases of the Skin," for October Quarter, 1869, p. 284, edited by Br Erasmus Wilson, F.R.S.

"Mr Crace Calvert has recently manufactured an admirable Medicinal Soap, containing 20 per cent. of Carbolic Acid. It is transparent and elegant in appearance, as well as most useful for cleansing and purifying the skin. We have prescribed it largely. It is most useful in Xeroderma, Ichthyodes, Hyperidrosis and Osmidrosis, and gives a freshness to the skin unequalled by any other soap. It is mildly stimulant as well as depurative and disinfectant. In Exanthematous Fevers, and Fevers of every kind, it will be found very valuable."

"12 Durham Villas, Kensington, London, W., 8th November 1871.

"Messrs F. C. Calvert & Co., Manchester.

"Gentlemen,—......For some time before I left India I used your Toilet and other Carbolic Soaps with much satisfaction and advantage; indeed, I ceased to use any other. I found none so detergent and soothing to discomfort caused by prickly heat, profuse perspiration, and other sources of dermic irritation in a tropical climate.......

"I am, Gentlemen, your obedient servant,
(Signed) FRED. I. MOUAT, M.D.,
Late Inspector-General of Prisons, Bengal;
formerly Professor of Medicine in the Medical College of Calcutta;
now Chief Medical Officer to the British Government Poor-law Board.

The Soaps are of various qualities, each containing a *guaranteed* proportion of Carbolic Acid. They are valuable as preventives of contagion, and for destroying unpleasant odours from the skin, and keeping it in healthy condition, as well as for washing Infected Clothing, or floors and walls of rooms infected with insects—the Domestic and Soft Soaps being prepared specially for last-named uses.

(PRICES AS ON MARGIN.)

F. C. CALVERT & Co., BRADFORD, MANCHESTER,

Original Manufacturers of Carbolic Acid, Carbolic Acid Soaps, and Carbolic Acid Powder; and sole Purveyors of these products to Her Majesty's Army and Navy, Emigrant and Passenger Ships, Convict Prisons, Indian Government, etc., etc.

TRADE MARK

Affixed to all products issued by F. C. C. & Co., as guarantee of the quality.

Silver Medal, PARIS, 1867.
Gold and Silver Medals, HAVRE, 1868.
Diplôme d'Excellence, AMSTERDAM.
Diplôme d'Honneur, SANTIAGO.
Silver Medal, 1st Class, NAPLES, 1871.
Juror, VIENNA, 1873.

Toilet Soap, 10 per cent. Acid	6d. Tablets.
Household Soap "	8d. and 1s. Bars.
Nursery Soap, 5 per cent. Acid	6d. Boxes.
Brown Windsor "	6d. Tablets.
Medical Soap, 20 per cent. Acid	1s. Tablets.
Domestic Soap, 8 " "	8d. lb. Bars.
Soft Soap, 10 " "	1s. lb. Jars.
and in Bulk	45s. per Cwt.
Dog Soap, 10 per cent. Acid	6d. Packets.
Shaving and Tooth Soap	6d. per Stick.
Tooth Powder (Perfumed)	1s. Boxes.
Tooth Paste	1s. 6d. Pots.

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

Page

1. **H. D. Littlejohn, M.D., F.R.C.S. Ed., Surgeon of Police and Medical Officer of Health for Edinburgh; Lecturer on Medical Jurisprudence and Hygiene, School of Medicine, Edinburgh.**—On the Practice of Medical Jurisprudence.—No. II. Medical Report, . . . 385
2. **G. Thin, M.D., London.**—On Inflammation (*with Illustrations*), . . 394
3. **Thomas Annandale, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.**—On the Pathology and Operative Treatment of Hip Disease (*with Illustrations*), ... 410
4. **James Cumming, M.D., F.R.C.P. Ed., etc.**—On the Uterine Souffle and the Fœtal Heart (*concluded*), ... 418
5. **Surgeon-Major William Curran, A.M.D.**—Personal Experience of Death from Aneurism and Disease of the Heart in the Service, . . . 428
6. **Joseph Bell, F.R.S. Ed., etc.**—Case of Malignant Pustule rapidly Fatal; with a Note on the Symptoms and Pathology of the Disease in Animals and Man, ... 437

PART II.—REVIEWS.

1. The Gentle Treatment of Spinal Curvature. By Henry Heather Bigg, Assoc. Inst. C.E., ... 440
2. Abstract of Results of a Study of the Genera Geomys and Thomomys, etc. By Dr Elliot Coues, U. S. Army, ... 440
3. On Stricture of the Male Urethra: Its Radical Cure. By Fessenden N. Otis, M.D., ... 441
   A Description of the Instruments and Apparatus of the Author, with Directions for their Use in Operations on the Genito-Urinary Organs. By F. N. Otis, M.D., ... 441
4. The Surgeon's Pocket-Book. By Surgeon-Major J. H. Porter, . . 442
5. Nature and Treatment of the Deformities of the Human Body. By Lambert H. Ormsby, M.B. Dublin University, ... 442
6. On the Issue of a Spirit Ration during the Ashantee Campaign of 1874. By E. A. Parkes, M.D., F.R.S., etc., ... 444
7. Die Resultate der Gelenkresectionem im Kriege nach eigenen Erfahrungen. Von E. Bergmann, ... 444
8. The Influence upon the Organism of Animals of Artificial Suppression of the Perspiration of the Skin. By Dr N. Sokoloff, ... 445
9. Dell' Ano Vulvare; non che di Varie Aperture e Fistole Retto-Vulvari e Retto-Vaginali, e della loro Cura. Memoria del Prof. Francesco Rizzoli, 447
10. Note-Book of Materia Medica, Pharmacology, and Therapeutics. By R. E. Scoresby-Jackson, M.D., F.R.S.E., ... 448
    Posological and Therapeutic Tables, etc. By Alexander Henry, M.B., . 448

PART III.—PERISCOPE.

Mauriac on Synovitis of Tendons symptomatic of Syphilis and Gonorrhœa, . 448
Ovariotomy with Pregnancy. Cæsarian Operation—Cure, ... 451
Pathognomonic Sign of Luxation of the Humerus, ... 452
Removal from the Hand of Half a Needle, its Presence being detected by the "Galvanic Needle," 453
Case of Traumatic Aneurism of the Left Subclavian Artery, ... 454
Concerning Gout.—A Letter by the late Dr James Jackson, ... 454
Periostitis of the Temporal Bone complicating Purulent Otitis, . . 456
Female Doctors, ... 457
Monthly Report on the Progress of Therapeutics. By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., ... 459

PART IV.—MEDICAL NEWS.

Appointments, ... 465
Obituary Notices of Professor Bennett and Peter Mere Latham, M.D., 466-474
Correspondence, ... 478

CONTENTS.

PART I.—ORIGINAL COMMUNICATIONS.

PAGE

1. **Joseph Lister, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.**—Demonstrations of Antiseptic Surgery, before Members of the British Medical Association, 4th and 5th August 1875, . . 481
2. **Thomas Annandale, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.**—On the Pathology and Operative Treatment of Hip Disease (*with Illustrations*), ... 487
3. **G. Thin, M.D., London.**—On Inflammation. Chap. II. (*with Illustrations*), 496
4. **Byrom Bramwell, M.B., Physician and Pathologist to the Newcastle-on-Tyne Infirmary.**—Report of a Case of Hydatids of the Liver (*with Illustrations*), ... 515
5. **Alex. J. Sinclair, M.D., F.R.C.P.E., Physician to the Royal Dispensary.**—The Antiseptic Treatment of Empyema, ... 521
6. **R. Craig Maclagan, M.D.**—Arsenic-Eaters of Styria, ... 526
7. **Surgeon-Major William Curran, A.M.D.**—Personal Experience of Death from Aneurism and Disease of the Heart in the Service (*continued*), . 528

PART II.—REVIEWS.

1. A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By WILLIAM LEISHMAN, M.D., etc., . . . 535
2. Sex in Industry: A Plea for the Working Girl. By AZEL AMES, Jun., M.D. 536
3. Das Chinin nach den Neuern Pharmakologischen Arbeiten, Dargestellt. Von C. BINZ, Dr der Medicin und Ord. Professor zu Bonn, . . . 541
4. Syphilitic Lesions of the Osseous System in Infants and Young Children. By R. W. TAYLOR, M.D., ... 541
5. Lectures on Syphilis, and on some Forms of Local Disease affecting principally the Organs of Generation. By HENRY LEE, . . . 542
6. Lessons on Prescriptions and the Art of Prescribing. By W. HANDSEL GRIFFITHS, L.R.C.P. and S.E., ... 543
7. Commentary on the British Pharmacopœia. By WALTER G. SMITH, M.D., 544
8. Tinnitus Aurium: A Consideration of the Causes upon which it depends, and an Attempt to Explain its Production in accordance with Physical Principles. By SAMUEL THEOBALD, M.D., ... 545

PART III.—MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.—SESSION LV., MEETING I.—Paper by Dr JOHN DUNCAN on the Treatment of Nævus, with Discussion. Papers by Dr CRAIG on the External Uses of the Hydrate of Chloral, and on Jaborandi, with Discussion, ... 546

OBSTETRICAL SOCIETY OF EDINBURGH.—SESSION XXXIV., MEETING XI.—Exhibition of Specimens, etc., by Dr WILSON, Professor SIMPSON, and Dr MATTHEWS DUNCAN. Note by Dr RATTRAY on a Case of Hypogastric Fistula. Paper by Dr JAMES CUMMING on the Uterine Souffle and the Fœtal Heart, with Discussion. Paper by Dr MILNE, entitled, Some Remarks on Obstetric Therapeutics, with Discussion, . . . 549

PART IV.—PERISCOPE.

Pathological Anatomy of Endemic Malarial Fevers.—Contributions to the Knowledge of Heart Murmurs from Extraneous Causes.—On the Dysmenorrhœal Membrane.—Local Anæsthesia.—M. Vulpian on the Physiological Action of Jaborandi.—Deafness after an Apoplectic Seizure.—Hæmatoma Auris.—A new Procedure to Extract Fluid Substances from the Cavity of the Middle Ear.—Morbid Anatomy of Progressive Muscular Atrophy.—Strychnia as an Antidote to Alcoholism.—Sciatica Cured by Eating.—Syphilitic Amaurosis.—Paralysis of Ocular Motor Nerves and Vertigo.—The Death of Crocé-Spinelli and Sivel.—Monthly Report on the Progress of Therapeutics. By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P. Ed., etc., . . 551–569

PART V.—MEDICAL NEWS.

Introductory Address at the Opening of the Edinburgh School of Medicine. By Mr JOHN CHIENE, F.R.C.S. Ed.—Too much Brain Work Bad for the Legs.—Save us from our Friends.—The Pathological Society of London, ... 569–573

CORRESPONDENCE, ... 574

PUBLICATIONS RECEIVED, ... 576

JUN 1969
GBY

3 2044 103 053 484